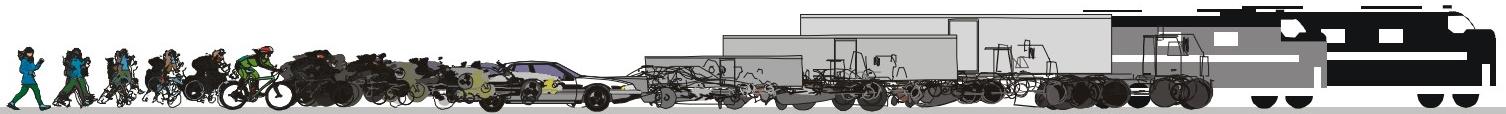


Transportation Plan Update



Adopted July 1998



Transportation Plan Update

Adopted July 1998

Financial assistance for the Transportation Plan Update was received from the Federal Highway Administration, the Federal Transit Administration and the New York State Department of Transportation. The recommendations of the plan are not necessarily those of state and federal agencies.

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POUGHKEEPSIE-DUTCHESS COUNTY TRANSPORTATION COUNCIL RESOLUTION

Adoption of Transportation Plan Update

Resolution PDCTC 98-2

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council is designated by the Governor of New York State as the metropolitan planning organization (MPO) for the Poughkeepsie metropolitan area, and

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council adopted a long-range multi-modal transportation plan entitled Transportation Plan in 1994, and

WHEREAS, the ISTEA regulations require review and adoption of the long-range plan at least every three years, and

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council has conducted a review and update to its Transportation Plan, and

WHEREAS, the PDCTC Transportation Plan Update is a product of a continuing, cooperative, and comprehensive effort of the Poughkeepsie-Dutchess County Transportation Council; and

WHEREAS, The Transportation Plan Update was developed in accordance with the PDCTC Public Involvement Procedures, and

WHEREAS, The Transportation Plan Update has been determined to be in conformity with the State Implementation Plan for air quality (SIP), and includes the required Air Quality Conformity Assessment to meet the Clean Air Act Amendments of 1990;

NOW, THEREFORE BE IT RESOLVED, that the Poughkeepsie-Dutchess County Transportation Council adopts the PDCTC Transportation Plan Update as the long-range plan for the Poughkeepsie metropolitan area; and

BE IT FURTHER RESOLVED, that the Transportation Plan sets the planning and programming priorities for the metropolitan area's transportation system; and

BE IT FURTHER RESOLVED, that the Transportation Plan will be updated every three years with the continued cooperation and input of the public.

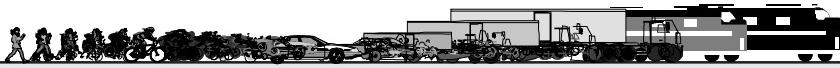
CERTIFICATION

The undersigned duly-qualified Secretary of the Poughkeepsie-Dutchess County Transportation Council certifies that the PDCTC Long-Range Transportation Plan was approved via a mail ballot after the Council was briefed at the Executive Meeting on March, 25 1998.

July 15, 1998
Date



Philip J. Clark, Secretary
Poughkeepsie-Dutchess County
Transportation Council



I. Introduction

This Transportation Plan Update was developed to guide transportation program development for the next twenty years in the Poughkeepsie metropolitan area which includes Dutchess County and the town of Lloyd in Ulster County (Figure 1-1). The plan was developed by the members of the Poughkeepsie-Dutchess County Transportation Council (PDCTC), the metropolitan planning organization (MPO) for the region.

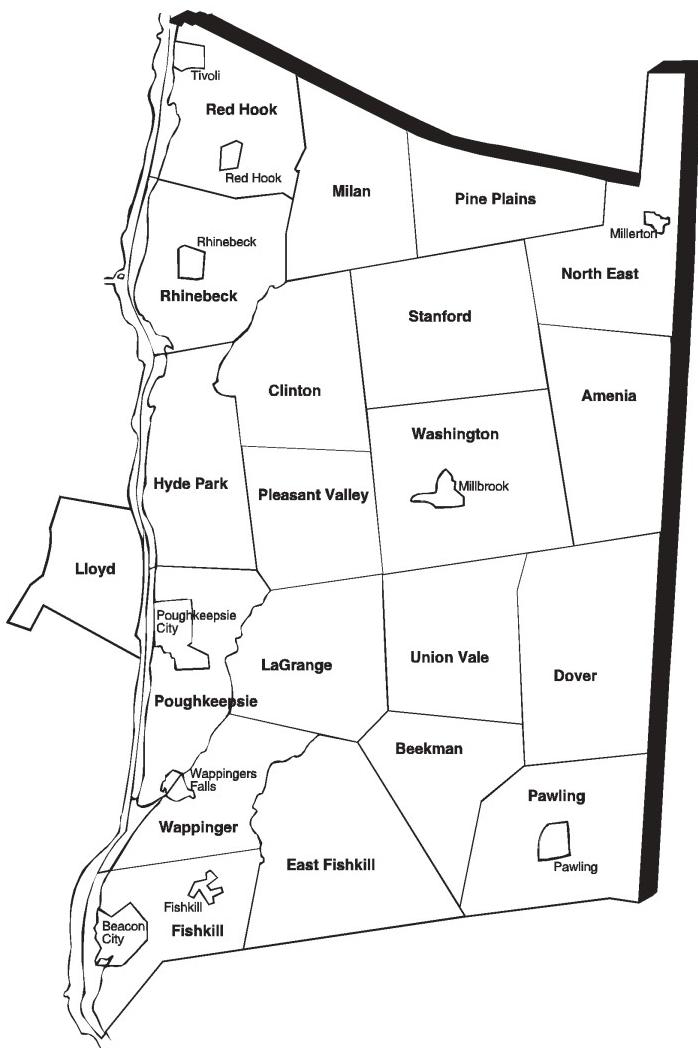
The 1994 Transportation Plan was the first long-range plan adopted by the PDCTC, and it was an outgrowth of past transportation planning efforts. Cooperation among federal, state, and local agencies in developing and implementing transportation plans can be traced to the late 1940s. In 1947, the New York State Department of Public Works (now the Department of Transportation) published a report about transportation in the greater Poughkeepsie area. This report, based on a 1946 traffic study, had two major recommendations. The first was the construction of a north-south arterial (Route 9) to carry traffic through the City of Poughkeepsie. The second recommendation was the development of an east-west arterial (Route 44/55) between the Mid-Hudson Bridge and Arlington, east of the city. The north-south arterial was completed in the 1960s, and the east-west arterial became operational in the early 1980s.

Subsequent plans by state, county and private organizations have echoed these recommendations, and proposed other projects to improve the highway system in the county. The Transportation Plan included a combination of recommendations to maintain existing infrastructure, provide new transportation capacity (transit and highways), and manage the existing metropolitan systems more effectively. This Transportation Plan Update continues to balance these interests.

Federal Guidelines

The Transportation Plan continues to be responsive to current regulations and guidelines related to transportation and environmental quality. The major federal programs that affect the plan are the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Clean Air Act Amendments of 1990 (CAA).

**Figure 1
Poughkeepsie Metropolitan Area**





ISTEA

The ISTEA requirements include a list of factors that must be considered in the development and implementation of the long range transportation plan. Commonly referred to as the "Sixteen Factors" (Figure 1-2), they include preserving existing transportation facilities, relieving and preventing congestion, identifying ways to improve transit services, freight movement and transportation enhancement activities, and relating transportation to land use and development.

ISTEA originally included a requirement that the state and the MPO develop six management systems and one monitoring system to assist in the implementation of future plans and programs. The management systems are intended to provide for ongoing, systematic data collection and analysis of major elements and issues of the transportation system. In subsequent legislation the requirement for management systems was dropped and they became recommended rather than required. The focus of each management system is described briefly.

- Pavement Management System (PMS) - Aids in selecting and implementing cost-effective pavement construction, rehabilitation and maintenance programs.
- Bridge Management System (BMS) - Allows alternative policies and programs for bridge maintenance and rehabilitation to be considered.
- Safety Management System (SMS) - Ensures that all elements of highway safety (road, vehicle, driver) are considered in efforts to reduce the number and severity of highway accidents.
- Congestion Management System (CMS) - Provides information on transportation system performance and identifies alternative strategies to reduce congestion and enhance mobility.
- Public Transportation Management System (PTMS) - Evaluates condition and cost of transit assets.
- Intermodal Management System (IMS) - Identifies key linkages between and among different modes of transportation and defines strategies that will enhance the overall performance of transportation system.
- Traffic Monitoring System (TMS) - Develops a process for collecting and analyzing data related to travel on public highways and streets.

NYSDOT is currently has several different management systems including: a PMS for all state highways, a BMS for a public bridges, a SMS for all state highways, a CMS for all state highways, a PTMS and IMS coordinated by the NYSDOT main office, and a TMS for all state highways, county roads and some local roads.

Clean Air Act

The Dutchess County portion of the Poughkeepsie area is currently designated a moderate non-attainment area for ozone by the federal Environmental Protection Agency (EPA). The Ulster County portion is an attainment area. Originally designated as a "marginal" area, Dutchess County was reclassified to moderate in late 1994 because it failed to attain the established standard by the initial deadline. The Transportation Plan and the subsequent TIPs must continue to identify measures and projects that will lead to attainment of national air quality standards in Dutchess County.

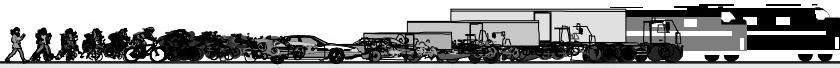


Figure 1-2 **ISTEA Sixteen Factors**

In developing transportation plans and programs, the Metropolitan Planning Organization shall consider the following:

1. Preservation of existing transportation facilities and, where practical, ways to meet transportation needs by using existing transportation facilities more efficiently.
2. Consistency of transportation planning with applicable federal, state and local energy conservation programs, goals, and objectives.
3. Need to relieve congestion and prevent congestion from occurring where it does not yet occur.
4. Likely effect of transportation policy decisions on land use and development and the consistency of transportation plans and programs with the provisions of all applicable short- and long-term land use and development plans.
5. Programming of expenditure on transportation enhancement activities as required in Section 133, Title 23, U.S. Code.
6. Effects of all transportation projects to be undertaken within the metropolitan area, without regard to whether such projects are federally funded.
7. International border crossing and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations.
8. Need for connectivity of roads within the metropolitan area with roads outside the metropolitan area.
9. Transportation needs identified through use of the management systems required in Section 303, Title 23, U.S. Code.
10. Preservation of rights-of-way for construction of future transportation projects, including identification of unused rights-of-way which may be needed for future transportation corridors and identification of those corridors for which action is most needed to prevent destruction or loss.
11. Methods to enhance efficient movement of freight.
12. Use life-cycle costs in design and engineering of bridges, tunnels, or pavement.
13. Overall social, economic, energy, and environmental effects of transportation decisions.
14. Methods to expand and enhance transit service and to increase use of such services.
15. Capital investments that would result in increased security in transit systems.
16. Recreational travel and tourism.



Population and Travel Trends

Early development in the Hudson Valley and Dutchess County was clustered along the Hudson River, which served as the primary avenue of travel. As settlement spread inland from the shores, new links, roads, railroads and ferries, were established to meet the travel and transport needs of the residents and businesses in the region. With the arrival of the automobile most of the main roads were paved, the railroads gradually diminished in importance, and bridges were built to replace the Hudson River ferries. Still, the transportation network centered on Poughkeepsie, and to a lesser extent Beacon, as the main hubs of employment, commerce, and recreation.

Growth in Dutchess County exhibited many of the trends that were evident in the rest of the country. As an "outer suburb" in the New York metropolitan region Dutchess experienced very high rates of growth in the 1950s, 1960s and 1970s. Within the county the trend away from traditional city and village centers occurred during the same time. New residents chose to live in suburban or rural areas, business and commercial centers located along major state roads (e.g. Route 9, Route 44, Route 52), and the automobile became the predominant transportation mode for most people.

This section will review some of the major population and travel trends of the past few decades and discuss implications for transportation planning.

People and Households

4

The population in Dutchess County increased by over 90 percent between 1950 and 1995 (Figure 1-3). The greatest rates of growth occurred between 1950 and 1970 when the population increased by more than 85,000.

The distribution of the population within the county is also of interest. In 1950 the City of Poughkeepsie housed 30 percent of the county's population, more than twice the next largest municipality (Poughkeepsie town). The city's population gradually declined, even as the county as a whole increased and by 1995 Poughkeepsie city included only 11 percent of the population. During the same time period many suburban and rural towns grew at tremendous rates (Figure 1-4).

Figure 1-3
Dutchess County Population 1950-1995

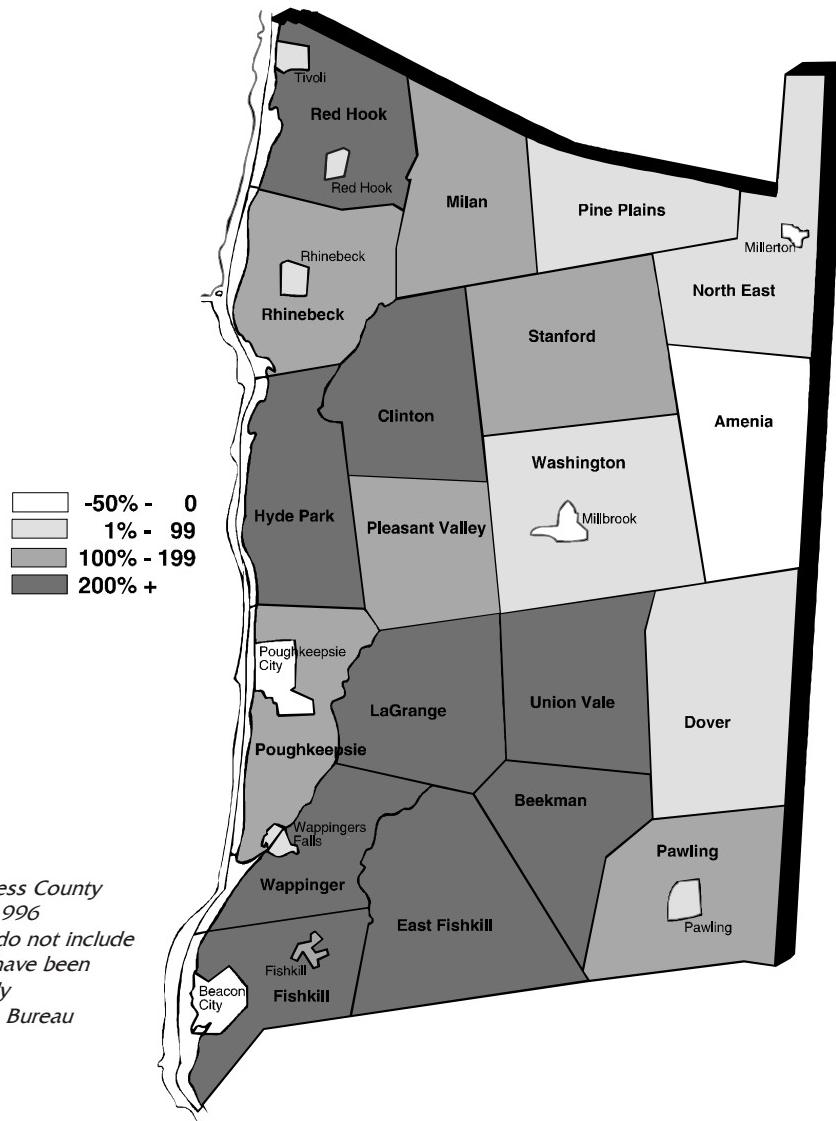
	Population	Change	Percent Change
1950	136,781	-	-
1960	176,008	39,227	28.7%
1970	222,295	46,287	26.3%
1980	245,055	22,760	10.2%
1990	259,462	14,407	5.9%
1995*	262,000	2,538	1.0%

Source: U.S. Census Bureau

*Estimate by Dutchess County Forecasting Project, 1996



Figure 1-4
Population Change 1950-1995*



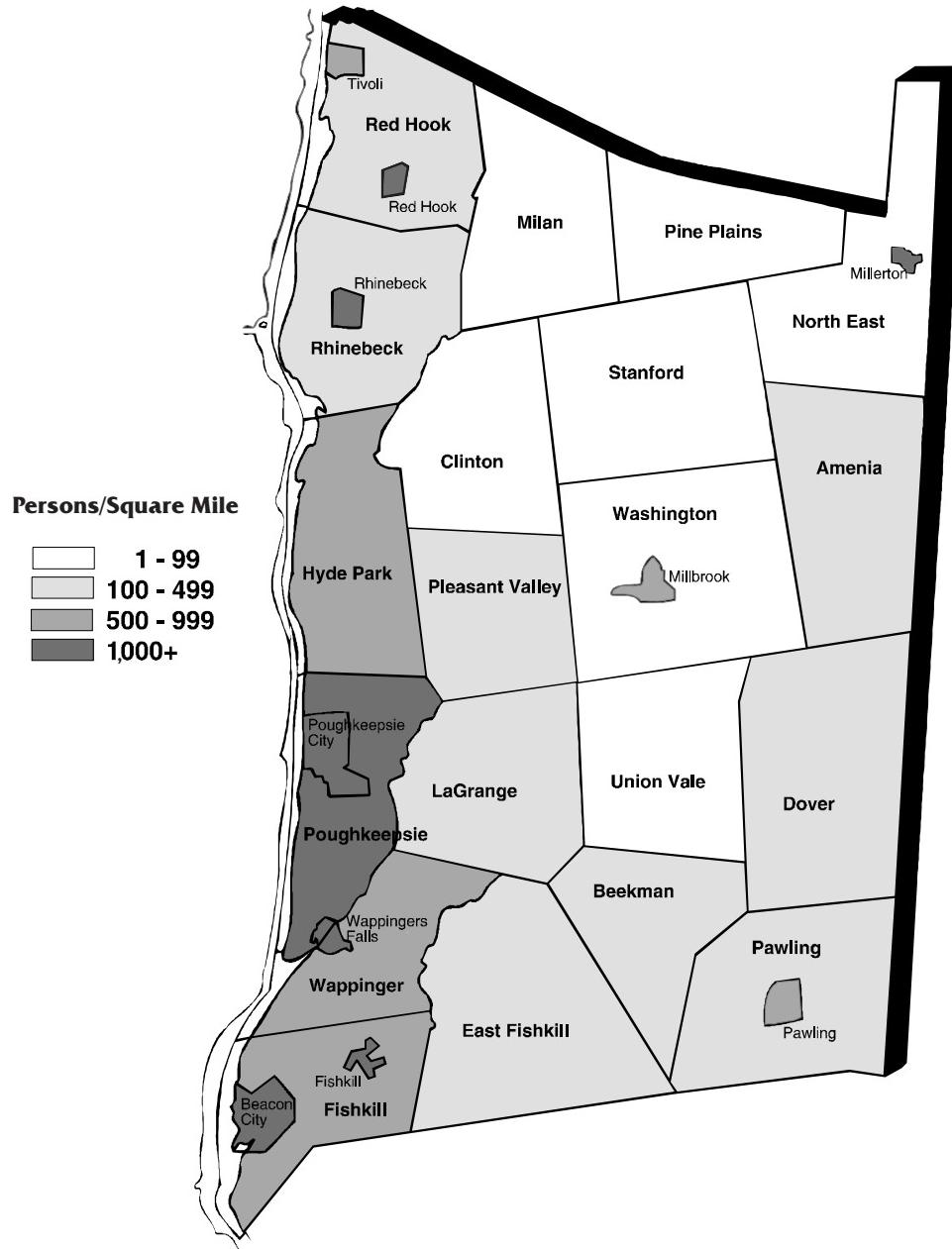
Population Density

The population density in Dutchess County ranges from less than 50 persons per square mile in the town of North East, to over 5,000 in the City of Poughkeepsie. In general, the southern and western parts of the county have the highest density (Figure 1-5).

While the population density in the county is increasing, most areas are not dense enough for frequent transit service. Local bus service with 30 minute headways requires a density of about 12,700 people per square mile to be effective.¹ The City of Poughkeepsie has a density of 5,430 persons per square mile, less than half of this figure, and runs some of its bus routes with 30 minute headways. Many Dutchess County LOOP buses run less frequently, often only two or three times a day.

¹ From Encouraging Public Transportation Through Effective Land Use Actions, U.S. Department of Transportation, May 1987, pp. 30-31.

Figure 1-5
Population Density 1995*

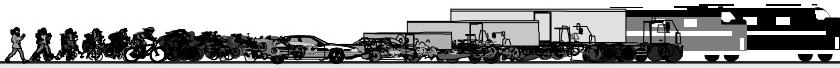


*Estimate by Dutchess County Forecasting Project, 1996

Note: Town figures do not include village data, which have been calculated separately

Source: Dutchess County Planning and Development and Poughkeepsie-Dutchess County Transportation Council

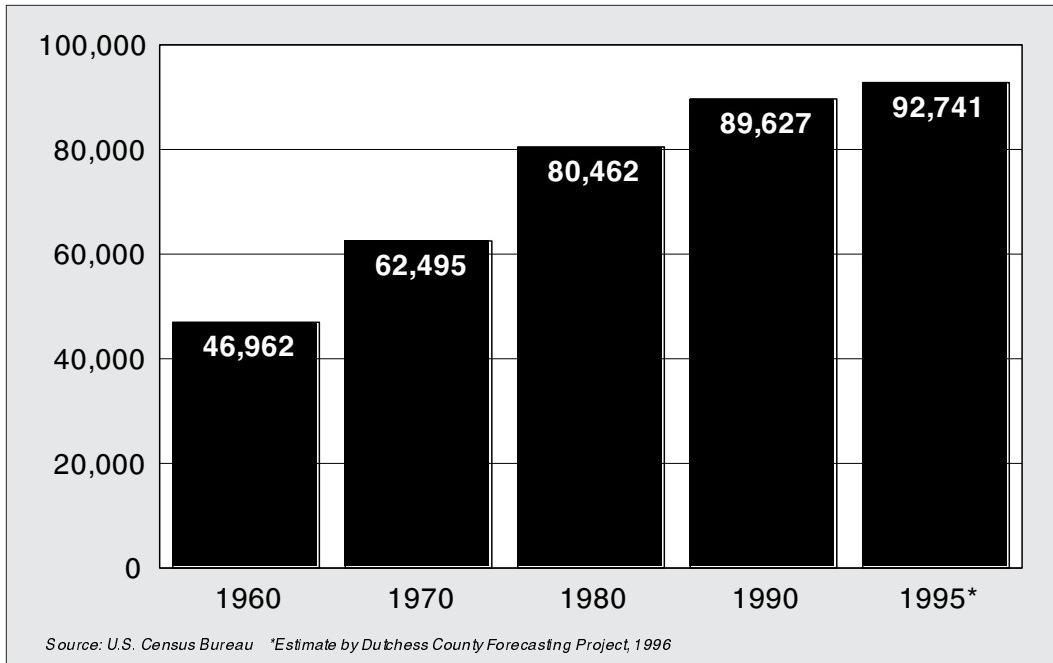
Implications - The cities and traditional village centers continue to be the most densely populated areas, although population shifts are resulting in greater density in historically more rural areas. The largest density increases are occurring in the towns of the urbanized area, and across the southern edge of the county. Several towns, particularly Poughkeepsie, Wappinger, Fishkill and Hyde Park have population densities that approach or exceed those of the traditional village centers.



Households

Since 1960 the growth in the number of households has increased almost twice as fast as the general population (Figure 1-6). Average household size has dropped from 3.23 to 2.61 (persons per household).

Figure 1-6
Dutchess County Households 1960-1995*



7

Implications - As the population grows so does the demand for travel. The dispersed growth of population also means that reliance on the automobile for the majority of travel is almost inevitable, because the overall density is insufficient to support widespread fixed route transit service. The growth in the number of households also implies increased travel since each individual household needs some means of support (i.e. a job) and some reliable method of transportation (e.g. a car).

Employment and Work Force

The size of the workforce in Dutchess County grew by almost 75 percent during the three decades between 1960 and 1990. In Dutchess, as in other parts of the country, growth in the workforce was fueled in part by two trends: more women working outside the home and the movement of the baby boom generation from school into jobs.

Jobs in Dutchess County have also increased in the past few decades, but the distribution has changed somewhat. In 1970 Dutchess County had a net inflow of workers. There were almost 83,000 workers living in the county, and more than 86,000 jobs available (Figure 1-7). The vast majority of the county's residents (93%) also worked here. Most of the remaining workers commuted to surrounding counties and New York City. The balance of incoming workers came primarily from Ulster and Orange counties.

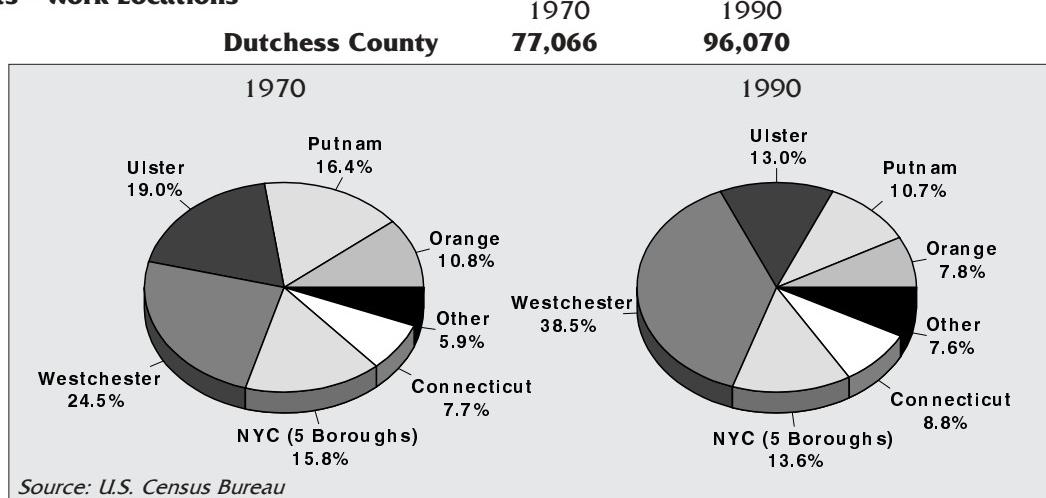


By 1980 the balance changed and more workers left the county each day for their jobs than came in. In 1990 the number of workers living in the county increased to 125,000 and the number of jobs to 121,000. Only about three-quarters of the workers worked in Dutchess; again most of the remaining 25 percent were employed in other Hudson Valley counties, primarily in Westchester, Ulster and Putnam counties and in New York City. Ulster and Orange counties supplied the majority of the incoming workers.

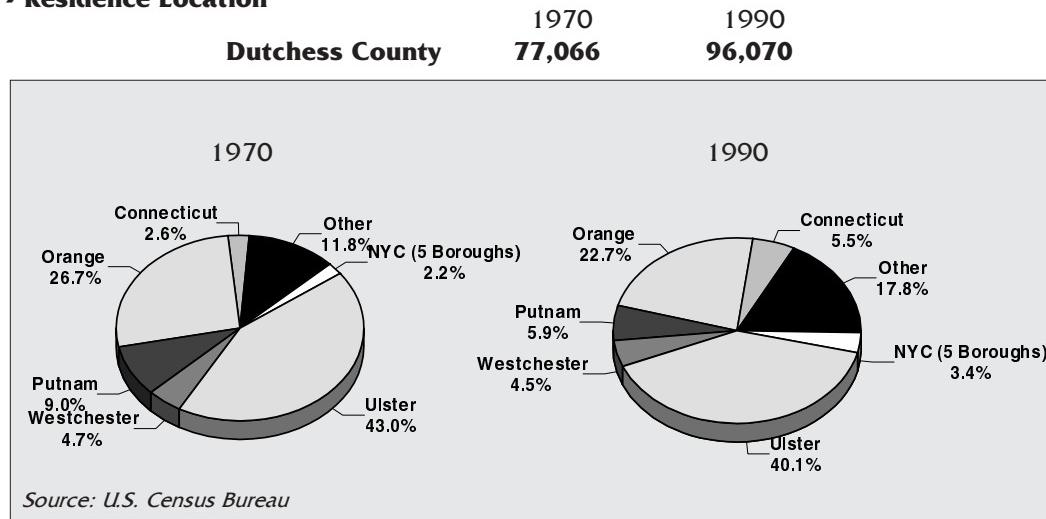
In 1995 there were an estimated 134,000 workers and 124,000 jobs. Still, about three-quarters of Dutchess workers worked in the county, and the rest commuted to other counties. In the future the gap between commuters coming into Dutchess and commuters leaving Dutchess is expected to widen. In 1995, approximately 10,000 more people left Dutchess for work than came into Dutchess. By 2020, this number is expected to increase to 17,500, despite an expected growth in the number of jobs in the county.

Figure 1-7
Commuter Flows 1970, 1990

Residents - Work Locations



Workers - Residence Location



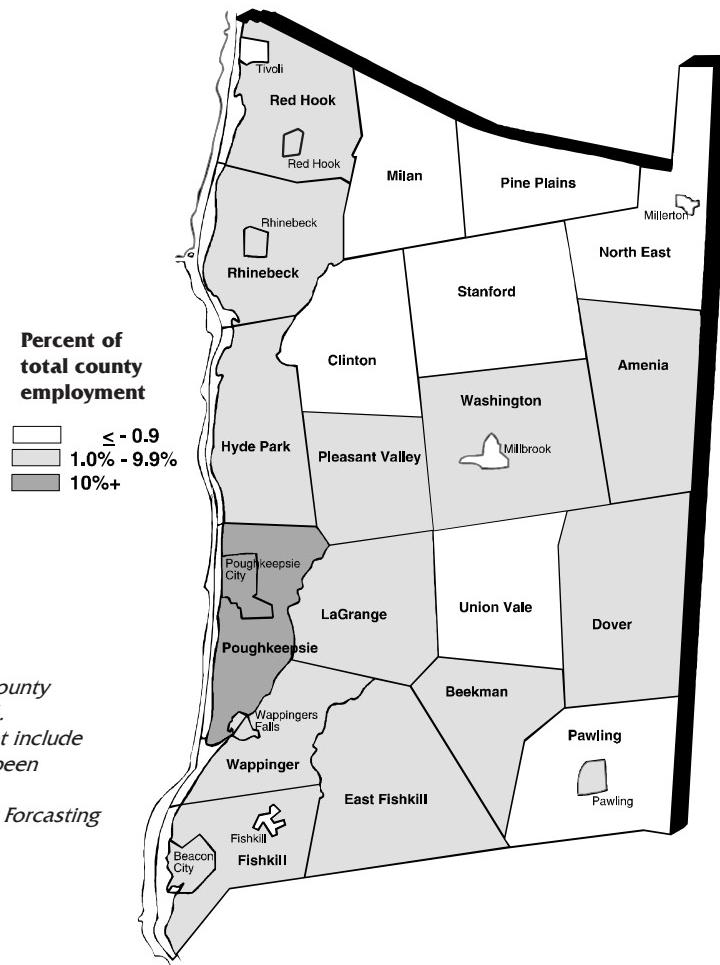


Implications - Obviously an increase in the number of workers means an increase in commuting and work-related travel. There has also been growth in the number of workers who leave the county for their jobs. The twin patterns of more dispersed job locations and greater inter-county commuting makes it difficult to provide adequate transit service. The relatively high number of Dutchess residents who commute to Westchester County may present an opportunity to increase transit and/or ridesharing.

Employment Centers

Among Dutchess municipalities, the town and city of Poughkeepsie continue to offer the greatest number of employment opportunities. East Fishkill, Hyde Park and Fishkill are also significant employment locations (Figure 1-8).

Figure 1-8
Employment Locations 1995*



9

Implications - The municipalities with the most jobs are in the urbanized area, in the southwest part of the county. This is also the area with the most population. This implies that Dutchess residents who work within the county will generally not have to travel long distances to get to work. This region of the county is also close to Ulster and Orange Counties, which supply the most commuters into Dutchess. Increasingly, however, commuters in the region's counties are not working locally, and many are traveling longer distances to employment centers. Rising housing costs in Westchester County has driven people to find more affordable housing such as that available in Dutchess County.



Commuting and Auto Ownership

As important as where people work is how they get there every day. The available information indicates that automobiles, particularly single occupant vehicles, are increasingly the mode of choice, with transit holding its own in terms of absolute numbers, and other modes such as walking or bicycling declining (Figure 1-9). In the decade between 1980 and 1990 the proportion of workers who drove alone to work increased from 68 percent to 78 percent. In fact the increase in the number of solo drivers (28,600) is greater than the increase in the total number of workers (22,000). Clearly workers have switched from carpools, transit and walking to driving as their primary mode of commuting.

**Figure 1-9
Journey To Work 1980, 1990**

Means	1980		1990	
	Number	Percent	Number	Percent
Drive Alone	69,318	67.9%	97,365	77.9%
Carpool	21,402	20.6	14,247	11.3
Transit	3,322	3.2	3,620	2.9
Walk	6,500	6.3	5,713	4.5
Other	1,124	1.1	1,220	1.0
Work At Home	1,939	1.9	2,991	2.4
Total Workers	103,605	100.0	125,726	100.0

Source: U.S. Census Bureau

10

Implications - The municipal data shows marked differences in mode choice for different parts of the metropolitan area (Figure 1-10). The highest rate of driving alone is 86 percent, in LaGrange, followed by Lloyd and Union Vale. The City of Poughkeepsie has the lowest proportion of solo drivers, at 66 percent. The City of Poughkeepsie also has the highest rate of transit usage, followed by the villages of Rhinebeck and Pawling. Transit use is lowest in Lloyd, presumably because transit within Ulster and between Ulster and Dutchess is quite limited. Use of "other means," primarily walking and bicycling, are highest in the villages of Pawling, Red Hook and Millbrook. Working at home is most prevalent in Washington, the Village of Rhinebeck, and Milan.

The increased availability of automobiles both in households and for individuals is very significant. In 1960 almost 15 percent of the county's households had no car available; by 1990 the proportion had dropped to eight percent. Conversely, the percentage of households with three or more automobiles increased from three percent to more than 20 percent during the same period.

Nearly half of Dutchess households have two vehicles available, with 21 percent having three or more, and 8 percent with none. Not surprisingly, the villages and cities tend to have a lower rate of auto ownership, as other transportation options are more readily available (Figure 1-11). One-quarter of the City of Poughkeepsie's households have no automobile, the highest rate in the county, followed by the village of Fishkill (18%), Beacon (17%) and the village of Wappingers Falls (12%). East Fishkill has the largest percentage of households with three or more vehicles, at 36 percent, with the towns of Pawling, Clinton, Union Vale and Beekman close behind. There are, nevertheless, many households outside of



Figure 1-10
Journey to Work 1990

Municipality	Drive Alone		Car Pool		Public Transit		Other means	
	#	%	#	%	#	%	#	%
C/Beacon	4,012	71.7%	966	17.3%	227	4.1%	333	6.0%
C/Poughkeepsie	8,684	65.8%	1,919	14.5%	956	7.2%	1,442	10.9%
T/Amenia	1,388	71.4%	365	18.8%	38	2.0%	120	6.2%
T/Beekman	3,465	82.8%	400	9.6%	100	2.4%	59	1.4%
T/Clinton	1,666	78.4%	241	11.3%	42	2.0%	64	3.0%
T/Dover	2,589	78.3%	473	14.3%	41	1.2%	137	4.1%
T/East Fishkill	9,058	82.9%	1,260	11.5%	245	2.2%	123	1.1%
T/Fishkill	5,505	83.1%	701	10.6%	219	3.3%	115	1.7%
T/Hyde Park	8,400	82.7%	981	9.7%	231	2.3%	324	3.2%
T/LaGrange	5,867	86.3%	602	8.9%	60	0.9%	116	1.7%
T/Lloyd	3,986	81.6%	573	11.7%	40	0.8%	194	4.0%
T/Milan	728	75.2%	116	12.0%	25	2.6%	37	3.8%
T/North East	674	71.9%	118	12.6%	13	1.4%	92	9.8%
T/Pawling	1,525	77.7%	233	11.9%	70	3.6%	83	4.2%
T/Pine Plains	828	73.7%	158	14.1%	21	1.9%	80	7.1%
T/Pleasant Valley	3,478	80.7%	593	13.8%	51	1.2%	76	1.8%
T/Poughkeepsie	15,763	76.4%	1,752	8.5%	566	2.7%	2,278	11.0%
T/Red Hook	2,534	75.3%	272	8.1%	53	1.6%	395	11.7%
T/Rhinebeck	1,636	78.6%	224	10.8%	50	2.4%	81	3.9%
T/Stanhope	1,435	76.3%	176	9.4%	74	3.9%	115	6.1%
T/Union Vale	1,400	83.6%	166	9.9%	21	1.3%	14	0.8%
T/Wappinger	10,093	82.3%	1,463	11.9%	236	1.9%	155	1.3%
T/Washington	1,173	67.6%	192	11.1%	87	5.0%	112	6.5%
V/Fishkill	651	78.2%	85	10.2%	16	1.9%	56	6.7%
V/Millbrook	487	72.4%	76	11.3%	13	1.9%	76	11.3%
V/Millerton	292	74.1%	68	17.3%	4	1.0%	22	5.6%
V/Pawling	611	67.0%	97	10.6%	39	4.3%	142	15.6%
V/Red Hook	666	74.5%	99	11.1%	24	2.7%	67	7.5%
V/Rhinebeck	999	77.4%	78	6.0%	63	4.9%	49	3.8%
V/Tivoli	375	75.6%	77	15.5%	8	1.6%	21	4.2%
V/Wappingers Falls	1,953	79.5%	296	12.1%	16	0.7%	160	6.5%

Source: U.S. Census Bureau Note: Town figures do not include village data, which have been separately estimated.

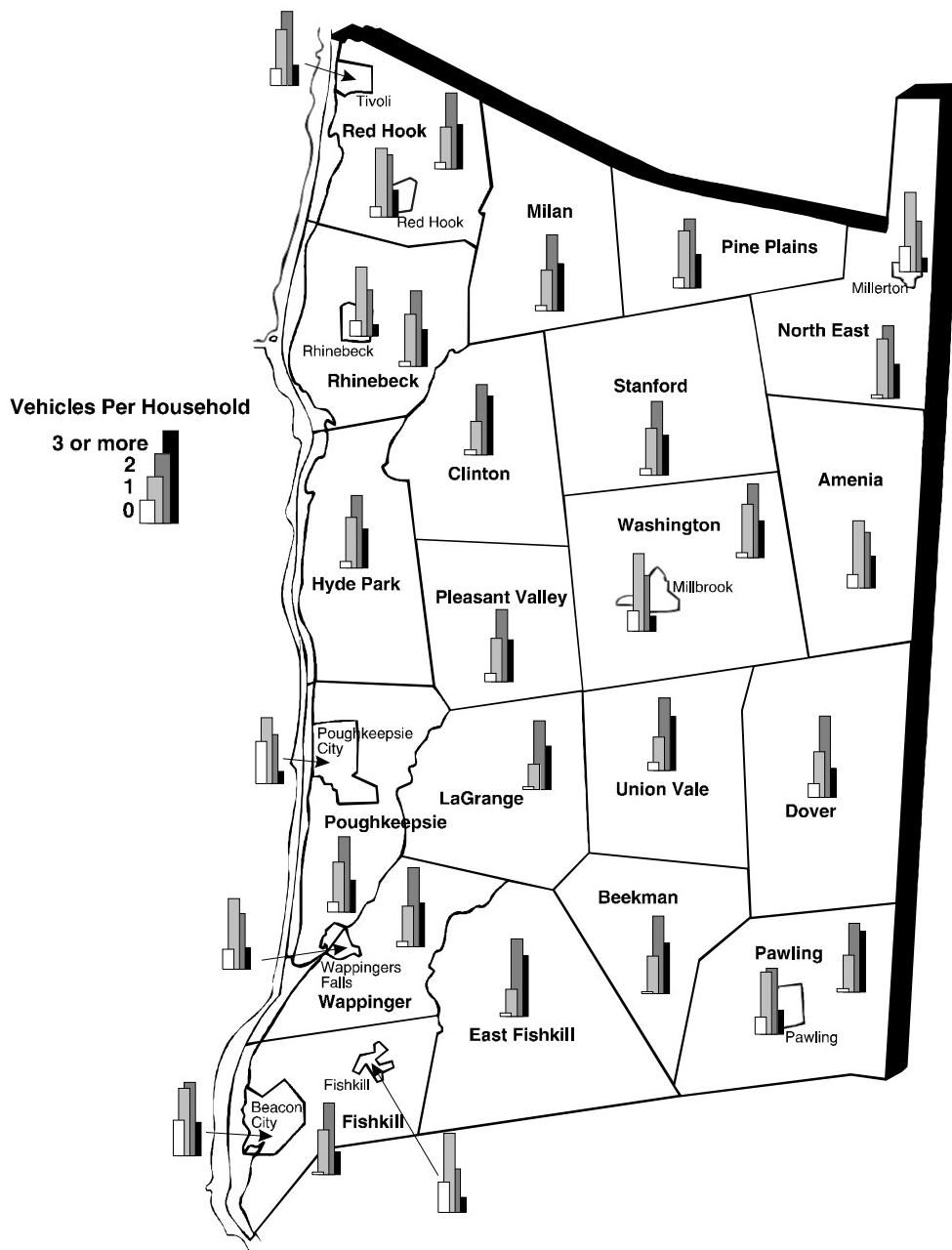
the cities and villages with no vehicles available. More than five percent of the households in Dover, Amenia, Poughkeepsie (town), Pine Plains and Pleasant Valley have no vehicle available. The rural nature of many of these communities may pose a challenge for some residents to travel for jobs, business and recreation.

Vehicle registration figures show similar increases. Between 1960 and 1996 the number of registered automobiles in Dutchess County increased from about 59,000 to 137,000. During the same years the number of licensed drivers grew from 109,000 to over 185,000, and the ratio of autos to drivers changed from roughly 1:2 to 3:4. Growth in vehicle registrations was fairly consistent through 1990, but has declined in recent years.



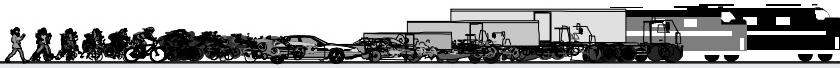
Implications - The general availability of personal automobiles increases the ability of individuals and households to make trips when and where desired. The personal automobile provides a degree of freedom, convenience and comfort that most other modes cannot match. In those communities where the number of households without automobiles is relatively high, additional efforts to establish and maintain appropriate alternatives are needed.

Figure 1-11
Vehicles Available 1990



Source: U.S. Census Bureau

Note: Villages included in Town Data.



Transit Use for Work Commute

Transit is not widely used in Dutchess County. The major transit systems include the City of Poughkeepsie Bus System, the Dutchess County LOOP Bus System, and Metro-North Railroad service to New York City. Inter-county bus service is provided on Leprechaun Bus Lines to White Plains, on ShortLine to New York City, Albany and points west, and on Arrow between Poughkeepsie and New Paltz. Approximately 3,200 residents use some form of transit to get to work. About half use the train, 40 percent use a bus and about 10 percent use some other form, such as a subway or ferry.

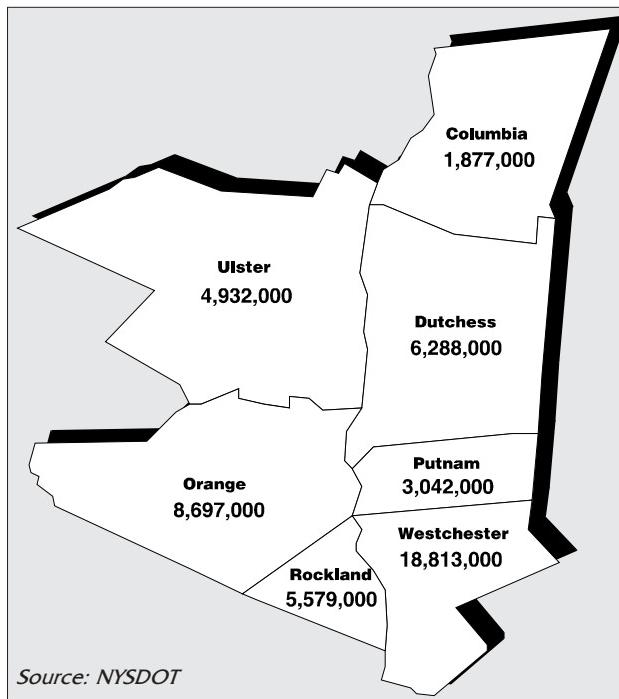
Implications - Conclusions based upon this information are somewhat tentative, however, because the data for transit mode comes from a Census question which allows only one response for mode of transit. For example, if a person takes a train and a subway, they would mark only one of these on the form, which affects the accuracy of the data. The growing numbers of Dutchess residents who work in Westchester County or New York City have contributed to ridership growth on Metro-North. In 1990 half of Dutchess transit users took a train, the great majority of which were leaving the county, which means that the number of Dutchess residents who use other forms of transit to commute within Dutchess County is very small.

Measures of Travel

A common measure of travel in an area is vehicle miles of travel (VMT). VMT has traditionally been estimated at the state rather than at the metropolitan or county level. Between 1920 and 1990 VMT in New York State increased from approximately 10 billion to 100 billion. Growth was steady except during World War II when gas rationing affected travel.

At the national level VMT has also grown significantly. A comparison of the results of the 1983 and 1990 Nationwide Personal Transportation Surveys (NPTS) published by the Federal Highway Administration indicates that VMT grew by almost 40 percent in the mid and late 1980s. The report also estimated how much of the growth was due to different factors. By far the largest factor was the increase in vehicle trip length. Other factors included growth in population, decrease in vehicle occupancy, changes in mode choice, and an increase in number of trips per person.

Figure 1-12
Vehicle Miles of Travel in
Mid-Hudson Counties 1990



NYSDOT prepared estimates of county VMT as part of its 1990 Mobile Source Inventory for air quality analysis, and estimated a daily VMT in Dutchess County of 6.3 million. In the Mid-Hudson region daily VMT estimates range from a low of 1.9 million in Columbia to 18.8 million in Westchester (Figure 1-12).

Implications - The level of VMT in Dutchess is related to the other indicators, population, employment and commuting trends. Growth in the general population, out-of-county commuters, and automobile availability for individuals and households all contribute to growth in the amount of travel on Dutchess roads and highways.



Projections

The growth in population, households and workforce is expected to continue through 2020. Projections in the Dutchess County Forecasting Project prepared in 1996 forecast a 2020 countywide population of almost 314,000, and total employment of about 152,000 (Figure 1-13). The biggest population increases are expected in the towns of Beekman, East Fishkill and Fishkill. The largest increases in jobs will take place in the town of Poughkeepsie, followed by the towns of Fishkill, East Fishkill, Wappinger and Amenia.

The composition of the county's population will also change during the next twenty-five years (Figure 1-14). Increases in life expectancy will result in people living longer, and increase the average age of the population. In general the over-45 population will grow sharply, while the under-45 population will decline slightly in absolute numbers, and more markedly as a percent of the total population.

**Figure 1-13
Population Forecasts 1990-2020**

Municipality	1990	2000*	2010*	2020*
C/Beacon	13,243	13,225	13,552	14,862
C/Poughkeepsie	28,844	28,103	28,212	29,293
T/Amenia	5,195	4,730	4,963	6,108
T/Beekman	10,447	12,371	14,374	18,381
T/Clinton	3,760	3,842	3,969	4,315
T/Dover	7,778	7,769	8,566	10,443
T/East Fishkill	22,101	23,922	26,080	28,904
T/Fishkill	15,698	17,825	19,643	22,622
T/Hyde Park	21,230	22,078	22,422	23,199
T/LaGrange	13,274	13,788	14,597	16,074
T/Milan	1,895	2,027	2,138	2,470
T/North East	2,034	2,180	2,427	3,353
T/Pawling	3,973	4,503	5,196	7,057
T/Pine Plains	2,287	2,367	2,451	2,733
T/Pleasant Valley	8,063	8,355	8,914	10,102
T/Poughkeepsie	39,254	39,721	41,017	41,922
T/Red Hook	6,736	6,931	7,333	8,177
T/Rhinebeck	4,833	4,971	5,472	6,698
T/Stanford	3,495	3,615	3,738	4,068
T/Union Vale	3,577	3,928	4,449	5,158
T/Wappinger	22,292	22,445	23,035	25,812
T/Washington	3,140	3,184	3,299	3,770
V/Fishkill	1,957	1,976	2,079	2,296
V/Millbrook	1,339	1,382	1,418	1,565
V/Millerton	884	881	900	1,026
V/Pawling	1,974	2,004	2,060	2,353
V/Red Hook	1,794	1,796	1,837	2,010
V/Rhinebeck	2,725	2,667	2,735	3,019
V/Tivoli	1,035	1,072	1,134	1,329
V/Wappingers Falls	4,605	4,495	4,517	4,764
TOTAL	259,462	268,153	282,527	313,882

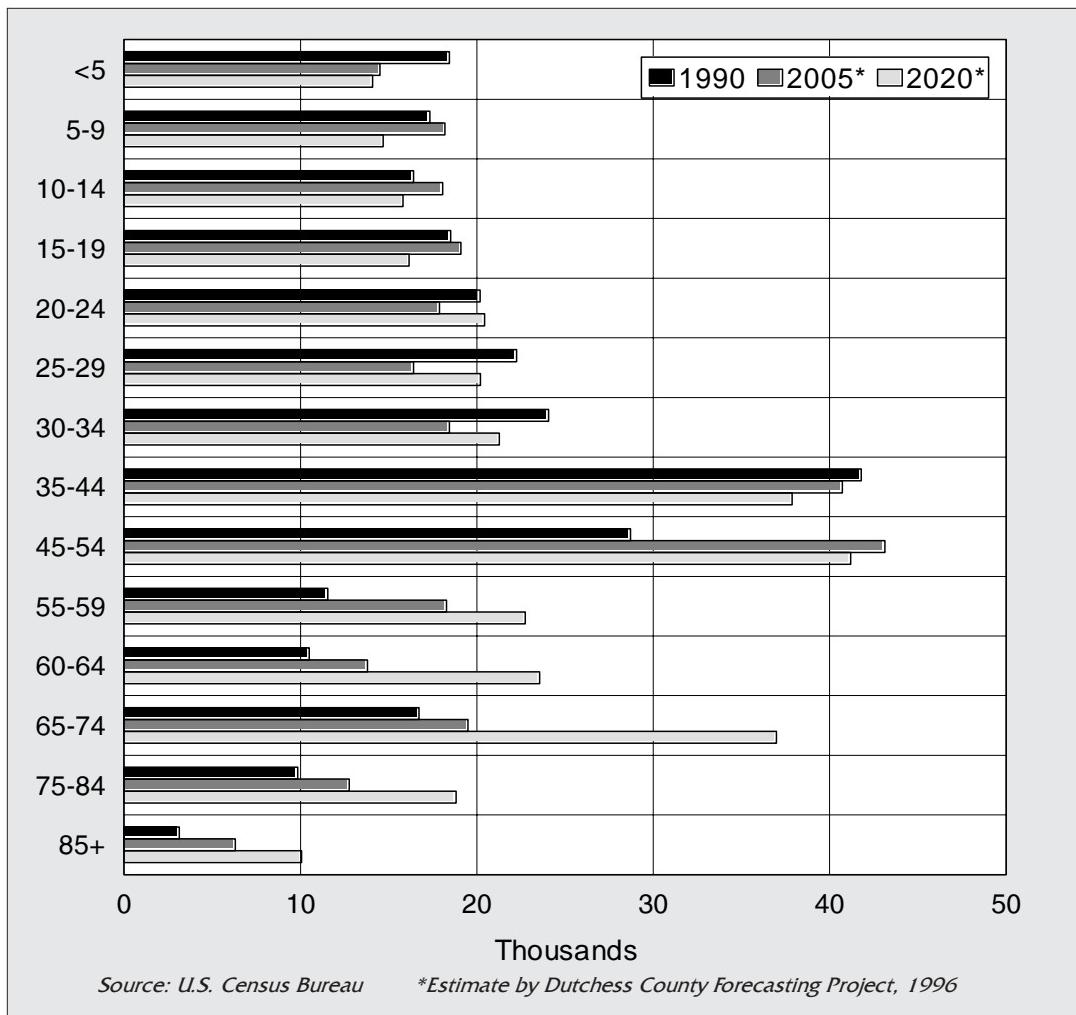
*Estimate by Dutchess County Forecasting Project, 1996

Note: Town figures do not include village data, which have been separately estimated.

Source: U.S. Census Bureau



Figure 1-14
Age Projections 1990-2020



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Implications - Future population growth in Dutchess is expected to be highest in the county's southern communities. The trend of people commuting to Westchester County and New York City from Dutchess is also expected to continue. Dutchess County's transportation interests will increasingly be tied to those of the New York metropolitan area. Job creation will take place mainly in the urbanized area, continuing the economic dominance of this region of the county.

The increase of people in older age groups means that there will likely be more people who are unable to drive or walk long distances. This creates special demands for the transportation network, and implies that continued reliance on auto-dependent development may impair the mobility of a larger proportion of the population.



Recent Developments

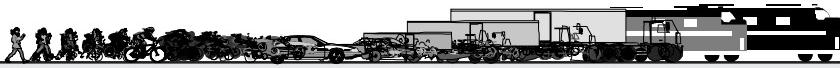
Since 1990 there have been some significant changes in the county's economy. Of particular importance are the decrease in both employment and number of jobs. Staffing levels at the two IBM facilities in Dutchess County were reduced by over 10,000 workers. The IBM Kingston facility was closed, and its remaining workers transferred to Poughkeepsie. In the eastern part of the county, the state closed the Harlem Valley Psychiatric Center in 1994, and transferred some of the work force to the Hudson River Psychiatric Center in Poughkeepsie. Nevertheless, the closing meant a loss of 1,500 jobs in the Harlem Valley. The Taconic Developmental Disabilities Services Office (Taconic DDSO) in Amenia has also reduced its operations and may close by the year 2000. Proposals for re-use of both state facilities are currently being considered.

Despite downsizing at many of the area's largest employers, there have been some new employment opportunities. Four Economic Development Zones have been established in Dutchess County, one in the City of Poughkeepsie, one in East Fishkill and two in the town of Poughkeepsie. Tax credits and incentives in these zones are designed to promote business and growth. Probably the most successful business to open in a zone is MiCRUS, a semiconductor plant in East Fishkill which employed 900 in early 1997. Laerdal Medical Corporation, in Wappinger, has also become a significant employer, with nearly 200 employees. Finally, the Postal Remote Encoding Center, which opened in November 1995 in Fishkill, employed 528 employees as of July 1997, with plans to add 50 to 60 positions. The success of these new employers is a sign of the county's economic vitality, and future growth can certainly be expected.

16 Summary

The Transportation Plan Update is the most recent in a long line of transportation plans in Dutchess County. The emphasis and recommendations of these plans have evolved in response to changing trends, priorities and funding levels.

The Transportation Plan examines all aspects of the area's surface transportation system: highways, bridges, bus transit, rail transit, freight movement, bicycles, and pedestrians and makes recommendations regarding system improvements and changes. Some of the recommendations have been adopted from previous plans, others are new. Infrastructure repair and maintenance projects, and capacity and service expansions for the various highway and transit systems are identified as important recommendations in the area. As in previous plans, the main goal has been to develop and maintain a transportation system that will meet the needs of the region's residents, businesses, and travelers.



II. Metropolitan Transportation System

The transportation system in the Poughkeepsie metropolitan area is multi-faceted. With the exception of some inter-city and commuter train trips, virtually all travel in the area takes place in motor vehicles (automobiles, trucks, buses) on the public road system. In turn, most trips are made by private vehicle rather than by public transit. Nevertheless, the non-highway components of the transportation system provide important links between the two counties and the larger region, and also provide service to those residents whose transportation options are more limited. The following chapter describes each of the system elements, highways and roads, bridges, bus transit, rail transit, air travel, freight movement, and bicycle and pedestrian facilities and explains its role in the larger context.

Highway Network

The highway network can be classified in different ways. All public roads come under the jurisdiction of state, county, city, town, or village governments, which are responsible for maintenance and reconstruction activities. The function of a road or highway within the overall network is determined by its location, design, and capacity.

Generally, the expressways and principal arterials are state roads, and most city, town, and village roads are designed to provide access to adjacent property. The relationship between jurisdiction and function is less clear-cut for many roads that are between these extremes.

Jurisdiction

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The New York State Department of Transportation maintains a summary of roadway jurisdiction in centerline miles. According to the most recent data there are just over 2,300 miles of public roads and highways in Dutchess County. Local government is responsible for two-thirds of the roads. The remaining one-third is split between county (396 miles) and state (412 miles). The town of Lloyd in Ulster County has roughly the same balance of road jurisdiction with 19 miles of state road, including the New York State Thruway, 15 miles of county, and 55 miles of town roads.

The urbanized area includes almost half of the total road miles. Fifty-three percent of the local roads, over one-fifth of the county routes, and one-third of the state highway miles, are located in these 12 communities.

Functional Analysis

The roads in Dutchess County and Lloyd have also been assigned a functional classification. There are seven broad categories, most with an urban or rural subset based on the road's location.

- Interstate (urban and rural)

The U.S. interstate system links the major urban areas throughout the county and is designed to provide for large volumes of through traffic. Direct land access is prohibited.

- Principal Arterial - Expressway (urban)

Like interstates, the arterial expressways are designed to carry through traffic. They are generally multi-lane facilities with grade separated interchanges and limited direct land access.



- Principal Arterial (urban and rural)

Major arterials provide an integrated network for the movement of relatively heavy traffic on longer trips that cannot be served by expressways. Continuity of routes and traffic controls are needed to provide as free a flow of traffic as possible. The arterial network also provides a connection between the expressways and the collector and local street systems.

- Minor Arterial (urban and rural)

Minor arterials supplement the major arterial system by carrying trips of a more local nature. The level of travel mobility is generally lower, and there is greater emphasis on land access than in the previous categories.

- Collectors (urban and rural)

The main function of a collector is to conduct traffic from local streets to the arterial and/or expressways and vice versa. This allows traffic to be distributed (or collected) without exceeding the capacity of the local street system.

In rural areas the collector system has two subsets, Major Collector and Minor Collector. These roads differ primarily in the size of the communities they serve. Minor collectors carry fewer trips between communities.

- Local Roads (urban and rural)

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The functions of a local road system are opposite those of the arterial system. Moving traffic is secondary to the primary purpose of providing access to adjacent properties; access includes pedestrian as well as vehicular movement.

Figure 2-1 includes all of the roads in Dutchess and Lloyd that are a part of the Federal Aid System with a functional classification of Rural Major Collector or higher. While it is relatively easy to classify the area's roads according to the function they are currently serving, many roads are currently serving functions for which they were not originally designed. The most common examples are through routes like Route 9, Route 9W, and Route 44 providing access to a range of commercial, office and residential uses, or town roads originally designed for local traffic serving as through roads.

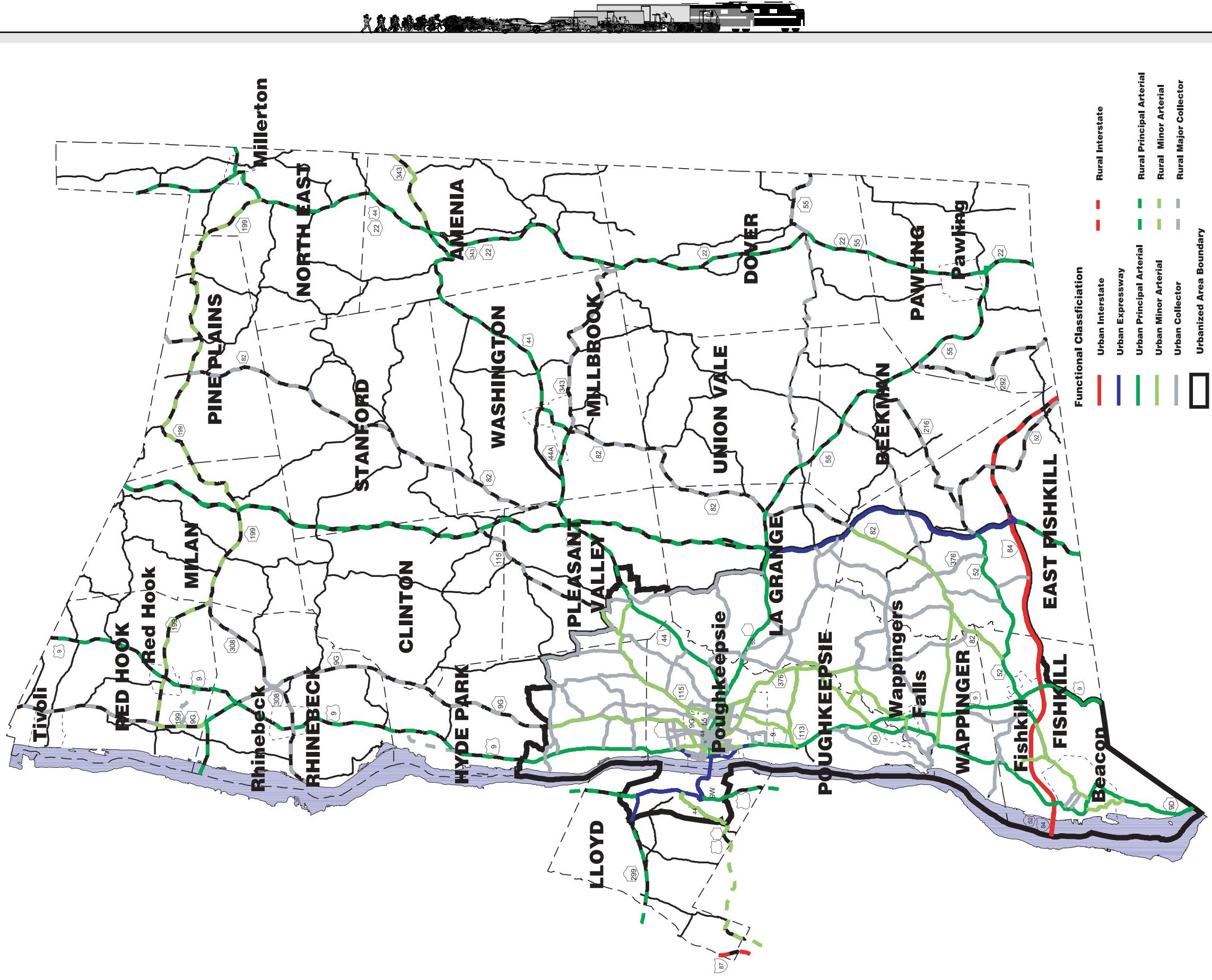
Pavement Conditions

The New York State Department of Transportation conducts annual pavement condition surveys as part of an overall sufficiency rating program. This survey is performed by using photographic and verbal scales during an "in-motion" windshield survey to assess surface and base pavement distress. Each highway section is then rated on a scale of 1-10, with 1 being the worst and 10 the best.

Rating	Condition Description
9-10	Excellent - No pavement distress
7-8	Good - Distress symptoms are beginning to show
6	Fair - Distress is clearly visible
1-5	Poor - Distress is frequent and may be severe

The surface conditions of the state roads in Dutchess County and Lloyd are in above-average condition with almost 60% of the road miles falling into either the good or excellent categories (Figure 2-2).

Figure 2-1
1991 Functional Classification



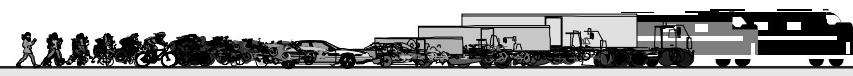
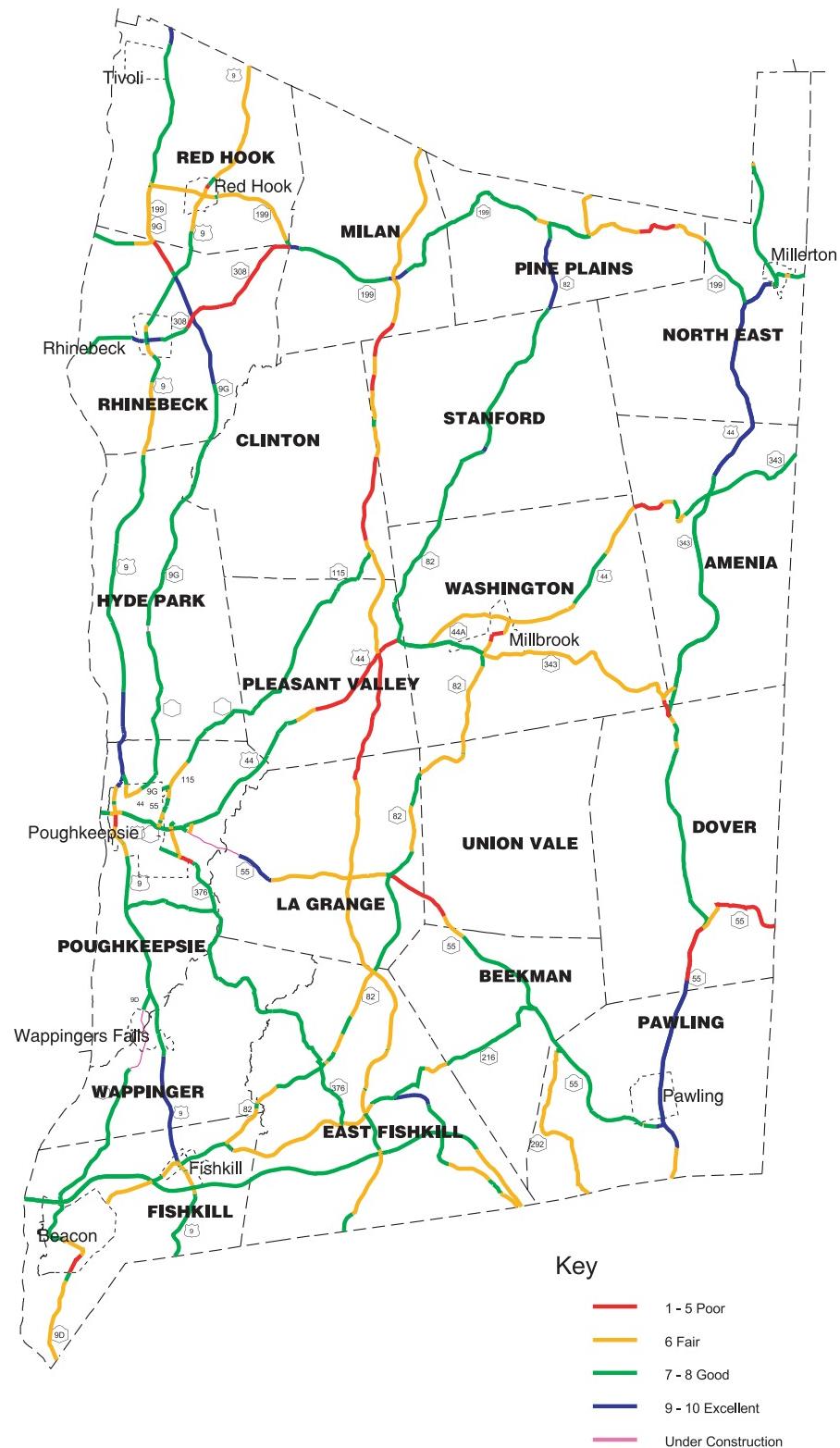


Figure 2-2
1997 Pavement Conditions



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The Dutchess County Department of Public Works (DPW) completed an in-depth pavement condition study for all county roads in 1993. The contractor used a Mays Ride Meter to determine the Present Serviceability Index (PSI) for 396 maintenance sections on 105 different county roads. The PSI alone does not determine the condition rating. DPW has also calculated a Terminal Serviceability Index (TSI) for each of five different types of roads. The TSI is the lowest permissible level of service for a given type of road, and is related to its function and average daily traffic. The classification used by DPW is described below.

Road Type	Excellent	Good	Fair	Poor
Farm-to-Market	3.51-4.00	3.01-3.50	2.01-3.00	<2.00
Local Access	3.51-4.00	3.01-3.50	2.21-3.00	<2.20
Collector	3.51-4.00	3.01-3.50	2.51-3.50	<2.50
Minor Arterial	3.51-4.00	3.36-3.50	3.01-3.35	<3.00
Principal Arterial	3.51-4.00	3.36-3.50	3.21-3.35	<3.20

Based on the most recent data and a summary of work completed since 1993, approximately 45 percent of the county road miles are rated as excellent or good; 35 percent are considered fair, and the remainder are currently rated below the applicable TSI.

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Capacity and Congestion

Another important aspect of the highway and road system is its ability to carry traffic efficiently. Capacity is a measure of the road's ability to accommodate vehicles over a given period of time. Characteristics such as number of lanes, geometrics, shoulder widths, traffic signals, surrounding land use patterns, and the mix of vehicles (trucks vs. passenger cars) all affect the capacity of a road. Congestion occurs in those cases where capacity is insufficient to meet demand.

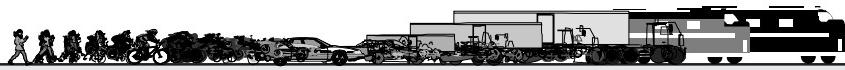
Two common measures of congestion are the Volume to Capacity Ratio (v/c) and Level of Service (LOS). The v/c ratio is a mathematical calculation of the volume of vehicles compared to the rated capacity of a road or intersection. If v/c is greater than 0.9 the facility is considered congested. Although a useful measure, the ratio does not fully account for operating conditions such as speed, maneuverability, travel time and motorist perception of the conditions. The Level of Service measure is intended to account for some of these perceptions. There are six levels of service, A through F, that work like standard school grades: A is best, F worst. In general a v/c below 0.5 is considered LOS A or B, between 0.5 and 0.9 corresponds to C and D, and above 0.9 the road is congested and operating at E or F. Brief descriptions of each level are outlined below.

LOS A: Free flow

LOS B: Stable flow; presence of others in traffic stream begins to affect individual behavior.

LOS C: In range of stable flow but beginning of range where individual users are significantly affected by interactions with others in traffic stream.

LOS D: High density but stable flow; speed and freedom to maneuver are severely restricted.

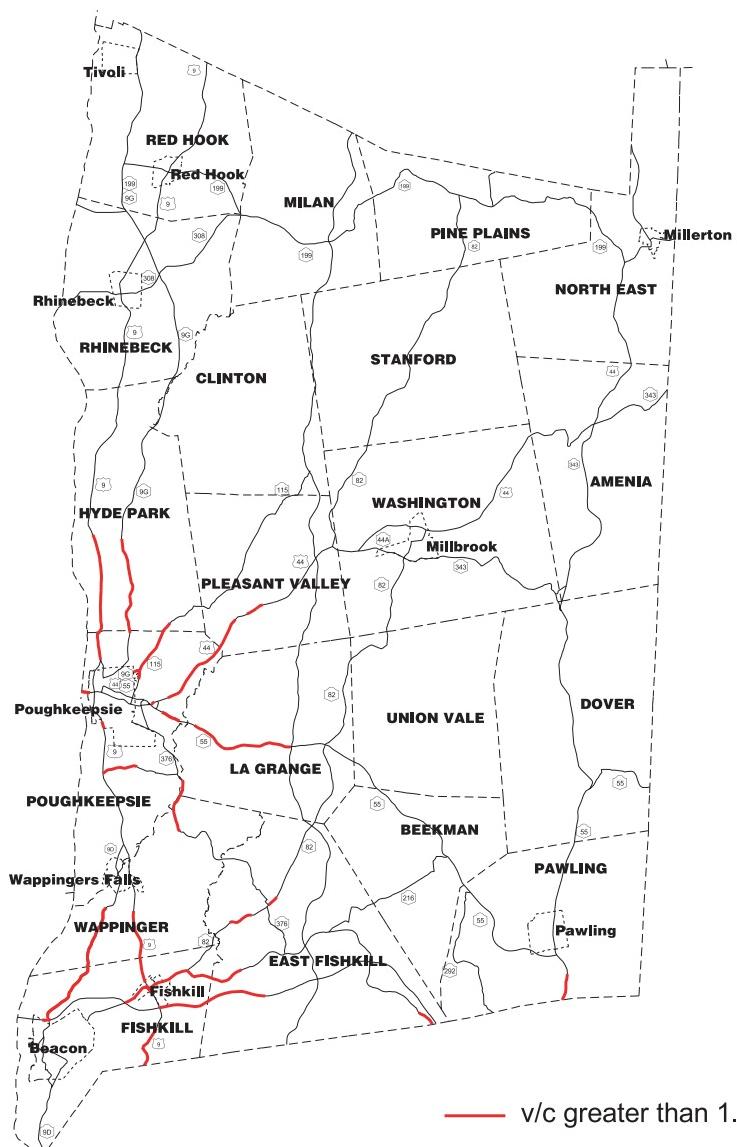


LOS E: At or near capacity level; all speeds are reduced to a low but relatively uniform value; usually unstable.

LOS F: Forced or breakdown flow, exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form, extremely unstable.

Dutchess County does not have widespread occurrences of congestion. Most of the major highway and road facilities are currently operating at acceptable levels of service. The current NYSDOT-Region 8 sufficiency ratings identify v/c ratios greater than 1.0 on Route 9 in Fishkill, Poughkeepsie and in Hyde Park, Route 9G in Hyde Park, Route 44 and 55 in Poughkeepsie and Pleasant Valley, Route 52 in the village of Fishkill, Route 82 in Hopewell Junction, and Route 113 (Spackenkill Road.) in Poughkeepsie (Figure 2-3). There are also other, more isolated, locations mostly in the urbanized area.

Figure 2-3
Areas of Congestion 1995





The Dutchess County Department of Public Works does not do a regular assessment of capacity on its roads. As with the state system most county routes are operating at acceptable levels of service, but there are isolated incidents of congestion on some roads in the urbanized area. County capacity improvement projects have focused on critical intersections

Highway Safety

In addition to analyzing the function and capacity levels of the county's highway system, it is also important to understand the level of safety accompanying the system's use. NYSDOT has an accident surveillance system which is used to monitor the accident experience on the state highway system. Locations with significant variation from the normal statewide accident rates are identified and investigated on a continuing basis. If necessary, a safety improvement project is programmed to correct the safety deficient condition. In addition, whenever a project is designed along a state highway a safety screening or analysis is performed to determine if there are any safety problems within the project limits that should be corrected.

The Centralized Local Accident Surveillance System (CLASS) also provides an automated tracking of accidents on local highways. The CLASS is limited by a lack of intermediate reference points (sections are between intersections or other physical nodes) and a lack of good traffic count data. This prevents CLASS from providing the automated statistical analysis of accident data that is available for the state highway system. CLASS does provide an automated summary of the raw accident data for each highway segment and intersection node.

The Dutchess County Traffic Safety Board maintains a computerized Accident Location System, but the level of data analysis that can be performed is limited. The current system contains information about accident location, extent of damage, and personal injuries. This type of information can be used for analysis such as the number of fatalities per year. The Traffic Safety Board does not currently have the ability to relate the number of accidents to traffic flow on all roads, or to study comprehensively the causes of these accidents and recommend improvements.

Bridge Facilities

Like highways, bridges are usually classified according to jurisdiction; state, county, municipal, or special authority. In Dutchess County and Lloyd most bridges are under local (county or municipal) control. There are also three large bridges operated by the New York State Bridge Authority that handle trans-Hudson travel.

State Bridges

NYSDOT owns 130 bridges in Dutchess County and maintains 101 of them, the rest are maintained by the Thruway Authority. In Lloyd NYSDOT and the New York State Thruway own and/or maintain three bridges. According to the latest bridge inspection data approximately 15 percent of these structures are considered deficient. Deficient merely means that some significant component of the structure has a rating of less than "5" on a scale of 1 (worst) to 7 (new). A deficient structure can render safe service for many years. In fact, NYSDOT's structural condition goal for bridges allows for 20 percent deficient bridges.

County and Local Bridges

Responsibility for rating the condition of non-state bridges (spans in excess of 20 feet) is shared by the Dutchess County Department of Public Works (DCDPW) and NYSDOT using the NYSDOT ratings system. The purpose of this monitoring and rating system is to identify bridges that are deficient so that rehabili-



tation funding priorities can be established. Sixty-three percent of the 140 bridges under the jurisdiction of DCDPW are deemed deficient.

Restricted Bridges

There are certain bridges in the state, called "R Rated Bridges," that limit the types of vehicles that can travel on them. The "R Rated Bridges" are bridges that cannot safely carry more than legal loads. Bridges in Dutchess County with an "R" rating are listed in Figure 2-4.

Two of these bridges are of particular concern because they are located along the arterial system and could restrict freight movement within the county. The two bridges are Route 44 over the Wappinger Creek in Pleasant Valley and CR 33 (Arthursburg Rd.) over Jackson Creek in LaGrange. Four of these bridges (1, 2, 4, and 9) are scheduled for replacement in the 1998-2002 TIP.

Figure 2-4
R - Restricted Posted Bridges in Dutchess County 1996

#	BIN	Description	Bridge Location
1	1025550	NYS Route 44	Wappinger Creek
2	1032360	NYS Route 82	E. Branch Wappinger Creek
3	1041330	NYS Route 216	Frog Hollow Brook
4	1047720	W Kerleys Road, CR 78	Stoney Creek
5	3342710	Poughquag Road, CR 7	Fishkill Creek
6	3342750	Green Haven Road, CR 8	Fishkill Creek
7	3342780	Centre Road, CR 18	Little Wappinger Creek
8	3342820	Hollow Road, CR 14	Little Wappinger Creek
9	3343280	Noxon Road , CR 21	Jackson Creek
10	3343440	Indian Lake Road, CR 61	Webatuck Creek
11	3343490	Hill Road, CR 50	Roeliff Jansen Creek
12	3343680	Kidd Lane	Stoney Creek
13	3343730	Budds Corners Road, CR 79	Saw Kill
14	3343920	E Noxon Road, CR 21	Fishkill Creek
15	3343930	E Noxon Road, CR 21	Fishkill Creek
16	3344000	Monfort Road	Sprout Creek
17	3344080	Canoe Hill Road	E. Branch Wappinger Creek

Source: NYSDOT

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Hudson River Crossings

The New York State Bridge Authority operates and maintains five toll bridges that cross the Hudson River, the Rip Van Winkle, Kingston-Rhinecliff, Mid-Hudson, Newburgh-Beacon and Bear Mountain. The panoramic vistas of the Hudson River Valley afforded by the bridges have led to all five bridges being designated as Scenic Roads by the New York State Department of Environmental Conservation. Four of these bridges have walkways that enable pedestrians to experience the views of the valley. Three of the bridges touch down in Dutchess County: the Kingston-Rhinecliff in the north, the Mid-Hudson at about mid-county and Newburgh-Beacon in the south.



In 1996 the three Dutchess crossings carried over 38.4 million vehicles. Over half of the vehicles were carried on the Newburgh-Beacon Bridge. Nearly 12 million vehicles used the Mid-Hudson Bridge and the Kingston-Rhinecliff Bridge accounted for 5.8 million vehicles (Figure 2-5).

Figure 2-5
Traffic Volumes by Vehicle Classification

	1986	Percent	1996	Percent	Percent Change
Kingston-Rhinecliff					
Commuter Cars	1,200,794	23.7%	1,562,246	26.6%	30.1%
Non-Commuter Cars	3,690,624	72.7%	4,119,176	70.1%	11.6%
Commercial	183,740	3.6%	193,544	3.3%	5.3%
Total	5,075,158	5,874,966	15.8%		
Mid-Hudson					
Commuter Cars	3,179,876	29.8%	4,203,704	35.1%	32.2%
Non-Commuter Cars	7,064,308	66.3%	7,334,564	61.3%	3.8%
Commercial	417,350	3.9%	434,372	3.6%	4.1%
Total	10,661,534	11,972,640	12.3%		
Newburgh-Beacon					
Commuter Cars	2,699,012	17.5%	3,914,030	19.0%	45.0%
Non-Commuter Cars	10,801,398	70.1%	14,177,696	68.9%	31.3%
Commercial	1,898,410	12.3%	2,471,198	12.0%	30.2%
Total	15,398,820	20,562,924	33.5%		

Source: New York State Bridge Authority

Commercial traffic currently represents about 12 percent of the traffic on the Newburgh-Beacon Bridge, and less than four percent of the traffic on the other two bridges. Over the last ten years the proportion of commuters, non-commuter passenger cars and commercial vehicles on each bridge has remained relatively constant.

- Kingston-Rhinecliff Bridge

The northern-most of the three bridges, the Kingston-Rhinecliff Bridge, serves local traffic between northeastern Ulster and northwestern Dutchess counties. Its average daily traffic count has traditionally been the lowest of the three bridges in Dutchess County. In the ten-year period between 1986 and 1996, the volume of traffic on this facility has grown by about 16 percent.

- Mid-Hudson Bridge

On a per-lane basis, the Mid-Hudson Bridge is the most heavily traveled of the three bridges, more



than 11.9 million vehicles crossed this two-lane span (three lanes during commuter hours) in 1996. This can be compared with the 20.5 million vehicles traversing the six lanes of the Newburgh-Beacon Bridge during the same year. This bridge has the highest percent of commuter crossings.

The interchange between Route 44/55 and Route 9 at the eastern approach to the Mid-Hudson Bridge is confusing and often congested. The "figure-eight" configuration of this interchange requires traffic entering and exiting Route 9 to cross paths over very short distances. The weaving pattern can cause conflicts at any time but the problems are most severe during peak periods. The area around the interchange is constrained by surrounding development.

- Newburgh-Beacon Bridge

The double-span, six-lane Newburgh-Beacon Bridge carries the largest total volume of the Bridge Authority's five facilities. In 1996, 20.5 million vehicles crossed the Hudson here. Interstate 84 has generated much of the traffic not only because it serves as an important link in the regional road system, but also because it has stimulated major business and commercial development in the southwestern corner of Dutchess County.

Public Transit - Bus

Dutchess and Ulster counties are served by a range of local public bus, para-transit, and private carrier services. In Dutchess County the most visible public bus services are provided by the Dutchess County LOOP Bus System and the City of Poughkeepsie Bus System. Service in Ulster County is provided by Ulster County Rural Transportation (UCRT). There are also several private carriers in the region, and some state, county, and not-for-profit social service agencies operate transportation services as part of their client programs.

Poughkeepsie Bus System

Poughkeepsie Transit operates seven routes in the city and nearby locations in the towns of Hyde Park and Poughkeepsie. The fleet consists of eight vehicles with seven vehicles operating the service. In 1996 Poughkeepsie Transit carried about 427,371 passengers. This is about twenty-five percent lower than 1986 (574,476).

Poughkeepsie Transit recently expanded service to include more routes to the Hudson Plaza shopping center south of the city. The City of Poughkeepsie has leased a vehicle to LOOP which provides scheduling and transportation for the city's ADA service.

In February 1997 the City of Poughkeepsie moved its operations to the Dutchess County LOOP facility in LaGrange. Maintenance of all City of Poughkeepsie buses is now performed by LOOP maintenance staff. Poughkeepsie Transit and LOOP continue to operate as two separate systems.

Dutchess County LOOP

Dutchess County maintains a fleet of 50 vehicles to operate fixed route service, commuter train connection service and two demand response services, Dial-A-Ride, and a rural para-transit service. The fleet of 50 vehicles consists of 49 county owned vehicles and one leased vehicle from the City of Poughkeepsie. As of January 1996 LOOP also schedules and provides non-emergency Medicaid transportation for Dutchess County residents, through a contract with the Dutchess County Department of Social Services. LOOP is also responsible for maintenance of the Dutchess County Transportation Center in Fishkill.



In 1996 LOOP carried 617,298 passengers on its fixed route service, 29,106 passengers on the commuter train connection service, 35,633 passengers on Dial-A-Ride and 58,301 passengers on the rural para-transit service. LOOP fixed service has had almost a 28% increase in ridership since 1992 (484,499). The Dial-A-Ride service has remained consistent over the years. Towns that participate in the Dial-A-Ride program include: Beekman, East Fishkill, Fishkill, Hyde Park, LaGrange, Pleasant Valley, Poughkeepsie, Red Hook, Rhinebeck, Wappinger, and the City of Poughkeepsie. The rural para-transit service and the Commuter Train Connection service began in 1993 and have had steadily increasing ridership.

Ulster County Rural Transportation (UCRT)

UCRT operates eight buses that provide both scheduled and demand response service to a wide area of the county. Service is available to Kingston, New Paltz and Highland. The county owns twelve buses, and regularly operates eight vehicles. In 1996 the system served 118,842 passenger trips, an increase of approximately 70% more than served a decade earlier (70,091).

Private Carriers

Adirondack Trailways, Arrow, Bonanza, Leprechaun Lines, and ShortLine provide regular transit service in both Dutchess and Ulster counties. Adirondack Trailways offers service from Newburgh to Kingston with a stop in Poughkeepsie. Arrow provides service between New Paltz and Poughkeepsie. Bonanza offers service from Dover Plains to Pittsfield, Massachusetts and New York City on a seasonal (summer) basis. Leprechaun Lines offer service from the town of Poughkeepsie to White Plains. ShortLine provides service from Rhinecliff to Fishkill and then to New York City (Figure 2-6).

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Inter-county service was identified as a priority in the 1994 Transportation Plan. NYSDOT took the initiative and sponsored several demonstration projects in the Mid-Hudson Region. Dutchess County services included service from Poughkeepsie to White Plains (operated by Leprechaun Lines) and I-84 service between Newburgh and Danbury (operated by ShortLine.)

Recently there were changes in several of the inter-county bus services sponsored by NYSDOT. The I-84 Bus Service between Newburgh and Danbury was terminated in late mid-1997 due to poor ridership. On a positive note, service on the Dutchess-White Plains Express was expanded from three to five round-trips per day, and ridership continues to grow. NYSDOT and the operator, Leprechaun Lines, are continuing their marketing efforts for this service.

Social Service Agencies

There are several public and private agencies that provide some level of transportation service to their clients. In almost all cases the transportation is ancillary to the main purpose or mission of the agency. Some of the agencies that provide transportation include Wassaic Developmental Center, Dutchess County Departments of Mental Hygiene, Social Services, and Aging, and the Dutchess County Association for Senior Citizens.

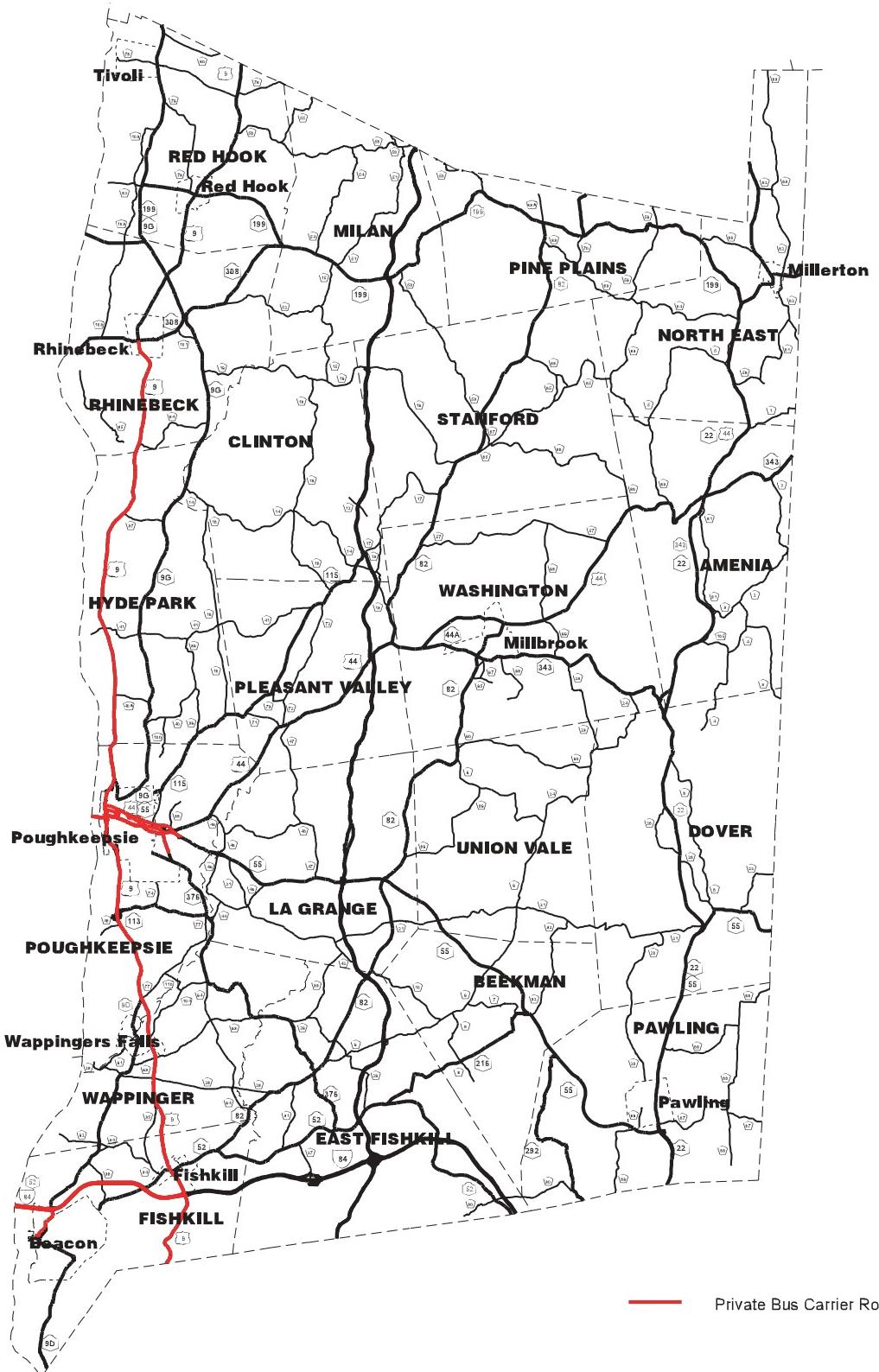
There is a wide variety of bus transportation available in Dutchess and Lloyd, and the systems generally operate independently of one another. The potential for better coordinating or merging the various operations has been discussed periodically during the past five years. The LOOP-DART coordination accomplished in 1993, and the maintenance agreement between Poughkeepsie and Dutchess County may be the beginning of greater cooperation among the existing service providers.

The Upper Hudson Mobility Advisory Committee (Upper MAC) was formed in 1996 to foster communication and coordination among the different transit providers in the region that includes Columbia, Dutchess, Orange, and Ulster counties. Public and private transit operators and other agencies interested in regional transportation meet periodically to discuss issues of mutual interest. The improved communication has facilitated efforts to provide coordinated marketing, ticket sales and service.



Figure 2-6

Private Bus Carriers



Source: NYSDOT Base map copyrighted by NYSDOT



Public Transit - Rail

Passenger train service in Dutchess County is provided by Amtrak and Metro-North Railroad (MNR), a subsidiary of the Metropolitan Transportation Authority (MTA). There is no passenger service in Ulster County. Conrail currently provides rail freight service in Dutchess County and the town of Lloyd. Norfolk Southern Corporation (NS) and CSX Corporation (CSX) have submitted their proposal for the purchase of Consolidated Rail Corporation (Conrail) to the Federal Surface Transportation Board (STB). The proposed acquisition by CSX is not expected to have any significant impacts on existing passenger operations.

Amtrak

Intercity service between New York City and Albany is provided in the western part of Dutchess with stops at Poughkeepsie and Rhinecliff. Amtrak is allowed to operate passenger service along the Hudson Line due to federal legislation that was authorized some years ago. Amtrak was established by the federal government and has received subsidies from the federal budget for operating passenger service across the country. Amtrak trains currently receive operating priority over freight trains from Conrail on the eastern shore rail line. CSX, NS and Conrail are expected to continue to afford Amtrak trains priority.

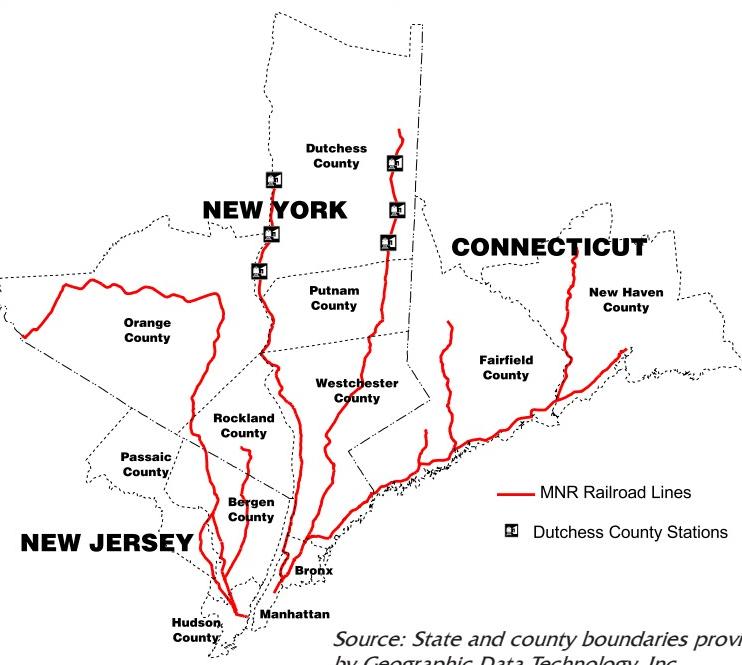
Metro-North Railroad

Founded as a public benefit corporation in 1983, as a division of the Metropolitan Transportation Authority, Metro-North Railroad is the nation's third largest commuter railroad. Metro-North serves five suburban counties in New York State (Westchester, Putnam, Dutchess, Rockland and Orange), two in Connecticut (Fairfield and New Haven) and two urban counties in New York (Bronx and Manhattan). The Harlem, Hudson and New Haven Lines terminate at Grand Central Terminal in Manhattan and the Port Jervis and Pascack Valley Lines terminate in Hoboken, New Jersey (Figure 2-7). A total of 113 Metro-North stations serve approximately 215,000 daily customers with a fleet of 725 electric rail cars, 124 coaches and 51 diesel locomotives.

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There are six stations in Dutchess County:
Poughkeepsie, New Hamburg and Beacon on the Hudson Line, and Dover Plains, Harlem Valley/Wingdale and Pawling on the Harlem Line. Since 1982, ridership from Dutchess County has more than doubled. Metro-North currently carries approximately 3,600 weekday passengers inbound from Dutchess County, compared to approximately 1,350 in 1982 (Figure 2-8.)

Figure 2-7
Metro-North Railroad Lines



Source: State and county boundaries provided
by Geographic Data Technology, Inc

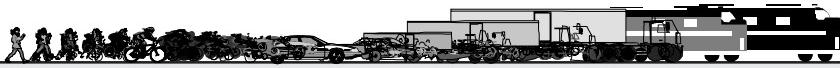


Figure 2-8
Metro-North Ridership 1982, 1996

Station	1982 Inbound	1996 Inbound
	Weekday Ridership	Weekday Ridership
Poughkeepsie	537	1,282
New Hamburg	193	799
Beacon	536	1,231
Dover Plains	27	145
Harlem Valley	13	78
Pawling	42	129
Total	1,348	3,664

Bus service to Metro-North stations is provided by several public and private operators. The Poughkeepsie Station is served by Poughkeepsie Transit, Arrow Bus, Leprechaun Lines, ShortLine, and the LOOP Commuter Train Connection (Hyde Park and Apple Valley Routes). The New Hamburg and Beacon stations are serviced by separate LOOP Commuter Train Connection shuttles. On the Harlem Line Pawling, Wingdale, and Dover Plains are served by Dutchess County LOOP.

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In August 1997, Metro-North published a Final Environmental Impact Statement (FEIS) for extension of the service on the Harlem Line from Dover Plains approximately 6 miles to a location north of the hamlet of Wassaic. The Wassaic Extension is currently being planned with a station north of the hamlet of Wassaic, a station at the Wassaic Developmental Center, and a storage yard at the terminus.

Metro-North will also examine the feasibility of extending its Hudson Line service from Poughkeepsie north to Rhinecliff or Tivoli, and of reviving passenger service on the Beacon Line between Hopewell Junction and White Plains. Both projects are described in the Plan Recommendations element.

Airport Facilities

There are four airports in Dutchess County that primarily serve private aircraft. The largest of these, the Dutchess County Airport is owned and operated by county government. There is limited commercial activity at the Dutchess County Airport. USAirways does have a passenger hub connecting Burlington, (Vermont), Binghamton, Buffalo, Plattsburg and White Plains. The number of passengers served by the airport has fallen dramatically with the opening and expansion of Stewart Airport. In 1986 58,641 passengers were served by the airport compared to only 14,359 passengers in 1996.

The close proximity of Dutchess to Stewart International Airport in Orange County limits the options for additional regular carrier service in Dutchess County. Access to Stewart Airport from Dutchess requires crossing the Hudson on one of the major bridges, but the most direct route is I-84. There is no regular transit service to Stewart from Dutchess County at the present time.

Stewart International Airport has become a regional airport offering connections to the major hubs in the Northeast (e.g. Atlanta, Chicago, Philadelphia.) The airport is served by several carriers including, AirTran Airways, American Airlines, Carnival Airlines, Delta Express, Midway Airlines, United Express, and



USAir Express. The passenger terminal area is currently undergoing an expansion and improvement project that will expand the airports capabilities and provide jetways. Passenger counts have been relatively steady in the past seven years. In 1991, the first full year of operation Stewart served 805,000 passengers, and in 1997 the number was slightly more than 834,000.

Ferry Service

No ferry service currently operates in or to Dutchess County. Plans are being discussed to provide service from Newburgh (Orange County) to Beacon.

Freight Movement

The freight network in Dutchess County and the town of Lloyd in Ulster County is comprised of major roads, rail lines and barges. There is access in both counties to air cargo facilities at Stewart International Airport in Orange County. The different types of freight movement; motor carriers, commercial railroads, air cargo companies and barge services, are discussed below.

The movement of freight or goods in Dutchess County is expanding as the network of infrastructure connecting the county to Stewart Airport, the Hudson Valley counties, the New York City region, Connecticut and other areas, becomes more developed and integrated. The options for transporting freight are truck/motor carriers, commercial railroad, air cargo and barges.

Motor Carriers

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The primary means of transporting goods in Dutchess County is by motor carrier. The trend towards increased use of motor carriers for transporting goods has evolved over the years and reflects national trends. In New York State, over seventy percent of commodities are transported by motor carriers from their place of origin or transferred from ports, railroads or air cargo onto trucks/motor carriers to be delivered to markets and other destination points. According to the information from the Commercial Transport Division of NYSDOT, there are 53 local firms with motor carrier certificates in Dutchess County. The types of products that are transported by local firms include: household goods, building materials, heavy merchandise, business machines, liquid petroleum products, race horses, alcoholic beverages, soil and gravel mining materials, hazardous materials, and general commodities. Motor carriers transporting these commodities generally use the expressways and principal arterials to reach destination points within and outside of the county.

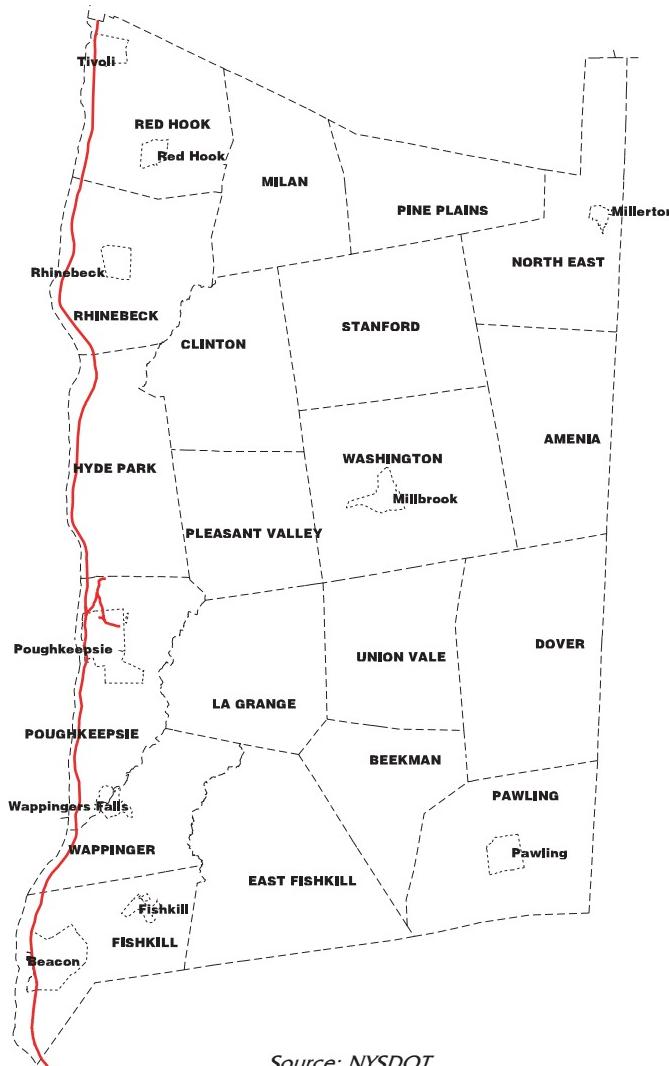
The motor carrier traffic originating in the county is flowing between the major businesses and industries producing and/or distributing materials and products to local markets and end users. Much of the freight activity is transporting products and materials outside of Dutchess County into other counties in the Hudson Valley, New York City, Albany, Connecticut and other export markets.

Freight Rail

The rail lines that remain in Dutchess County are located along the Hudson River, and the Harlem Valley (north-south rail lines), in the City of Poughkeepsie (branch rail lines) and along the southern edge of the county (east-west rail line). Freight service along the Hudson Line and the City of Poughkeepsie Branch rail line is currently provided by Conrail (Figure 2-9). Currently they are the only two lines that have active freight service in Dutchess County. A rail line also runs along the Hudson River through the town of Lloyd, this is one of Conrail's heaviest freight routes in New York State. Norfolk Southern and CSX Corporation have submitted a proposal for the purchase of Conrail to the Federal Surface Transportation Board (STB). Under the proposal the rail lines on the east and west shores of the Hudson River will be



Figure 2-9
Railroad Freight Lines



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acquired by CSX.

The proposed acquisition of Conrail by CSX and NS will result in no operational changes on the east shore line and is not expected to have any significant impacts on existing commuter operations. Metro-North currently owns the trackage south from Poughkeepsie to Grand Central Terminal; north of Poughkeepsie Conrail owns the trackage. Since CSX would be the new owners of the Hudson Line north of Poughkeepsie, a new agreement must be reached if service is to be expanded north to Rhinecliff or Tivoli. By federal law all commuter operations must be afforded priority for operation on all rail lines by the rails owners .

Air Cargo

The closest location for air cargo services in the Hudson Valley is at Stewart International Airport. Stewart International Airport provides national and international shipping capacity for local businesses that are receiving or exporting goods and products. At the present time Airborne, Emery, Federal Express, American Airlines, Delta Airlines, and the US Postal Service operate air cargo facilities at



Stewart.

The amount of cargo being shipped out of Stewart International Airport has increased in recent years with development of the industrial park and other improvements for freight operators and shippers in the region. In the past decade the cargo tonnage moved at Stewart has ranged from almost 14,000 tons to just over 91,000 tons. In 1997 there was a total of 76,445 tons. There has been an increase in employment from cargo and freight forwarding companies in the region.

In addition to the existing 120,000 square feet of air cargo facilities, there is approximately 40,000 square feet available for future expansion. There are also improvements and plans formulated for the airport by New York State and Stewart Master Plan committee. The expanded air cargo facilities and planned improvements to the airport will help attract more cargo and freight forwarding companies to the facilities and potential tenants to the industrial park. The expansion will also benefit businesses and freight companies in Dutchess County that use the air cargo services for domestic and international shipping.

Barge

There are several barge companies that continue to use the Hudson River as a means of transporting freight between New York city and Albany, with various distribution points along the way. The barge service in Dutchess County is limited to a few industrial sites along the river that receive and transport goods such as oil and lumber. There has been a decline in the use of barges for shipping goods in the region due to technological improvements in other modes of transportation. In addition, several manufacturing companies which were located along the Hudson River that shipped their products on barges have closed or relocated. The local decline in freight movement on barges is similar to trends at the state and national level where motor carriers and freight rail service have replaced some of the barge activity.

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Bicycle and Pedestrian Facilities

There are few dedicated bicycle facilities in Dutchess County, and only the cities and major village centers have a significant network of sidewalks. According to the 1990 Census, fewer than six percent of Dutchess County workers cycle or walk to their jobs. There is little reliable information about other trip purposes.

In Dutchess County bicycling and walking accounted for 4.8 percent of all work trips in 1990. Some of the municipalities with the highest number of people walking or bicycling to work were the town of Poughkeepsie (10.3%), the town of Red Hook (18.8%), the village of Millbrook (10.3%) and the village of Pawling (13.8%).

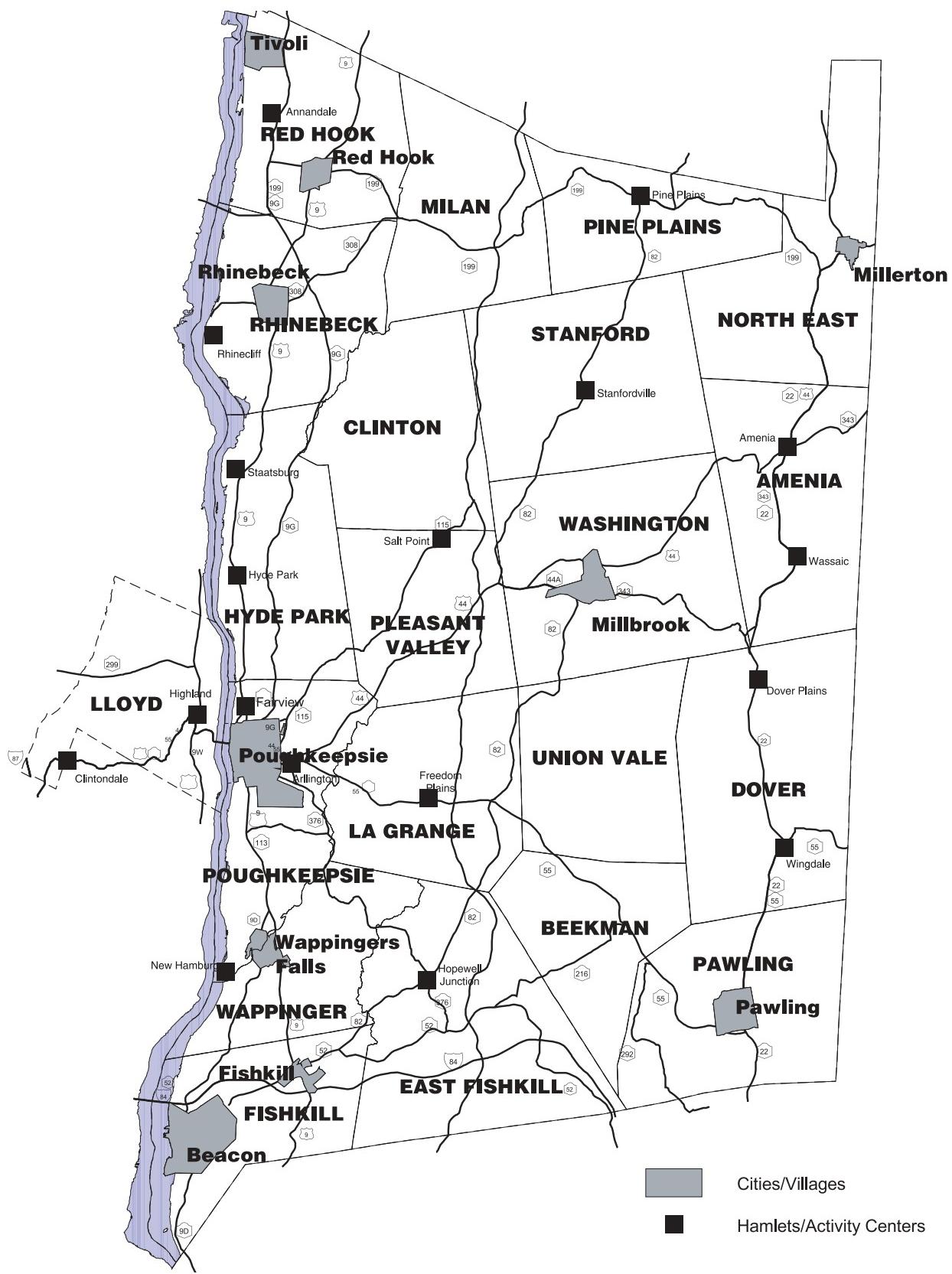
Bicycling and walking are being integrated into the transportation system, but it will take a continued effort to insure their special needs are addressed in planning and implementation. To facilitate bicycling and walking issues of access, education, enforcement, information, and safety and security need to be addressed. Improving the overall environment for pedestrians and bicyclists will result in increased use.

The PDCTC Bicycle and Pedestrian Plan adopted in 1996 identified areas where more formal accommodation of pedestrians is appropriate. These "Pedestrian Zones" (Figure 2-10) occur in the cities, villages, larger hamlets and other activity centers where walking is common. These areas are prime candidates for traffic calming techniques and pedestrian facilities improvements. Attention should be given to missing links in the sidewalk networks in these areas. A preliminary assessment of the sidewalks in these areas is underway.

The PDCTC Bicycle and Pedestrian Plan also includes a Bicycle Network Map (Figure 2-11) that identifies the major bicycle routes in the metropolitan area. The vast majority of the routes are along existing

Figure 2-10
Pedestrian Zones

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state and county roads and will be accommodated with wider lanes and/or shoulders. There are proposals for some new facilities along abandoned rail corridors to serve pedestrians and bicyclists. Significant facilities include:

- Wilbur Boulevard Path - Separate shared use facility (bicycle/pedestrian) in the city and town of Poughkeepsie.
- Route 113 (Spackenkill Road) - Signed bicycle route in Poughkeepsie.
- NYS Bicycle Route 9 - Signed bicycle route between New York City and Montreal (Canada), a distance of 345 miles. This route is primarily on existing roads and is designed for experienced bicyclists.
- Harlem Valley Rail-Trail - Separate shared use facility (bicycle/pedestrian). Phase 1 included paving 4.5 miles in Amenia and North East, and was completed in 1996.
- Highland Rail-Trail - Separate shared use facility (bicycle/pedestrian) in the town of Lloyd (Ulster County). The initial three-mile section was opened in 1997.
- Maybrook Rail-Trail - Dutchess County has agreed to cooperate with local initiatives to establish an interim shared use facility (bicycle/pedestrian) until final decisions regarding this abandoned corridor are made.

New York State Department of Transportation and Dutchess County Department of Public works have adopted policies of providing paved shoulders on roads and bridges wherever possible to provide for bicyclists and pedestrians. Recent reconstruction and paving projects have included wider shoulders, new sidewalks, and designated bicycle lanes.

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Summary

Roads and automobiles comprise the base of the Poughkeepsie areas transportation system. The public transit, airport, freight, bicycle, and pedestrian systems and facilities are also important to the residents of Dutchess and Ulster counties.

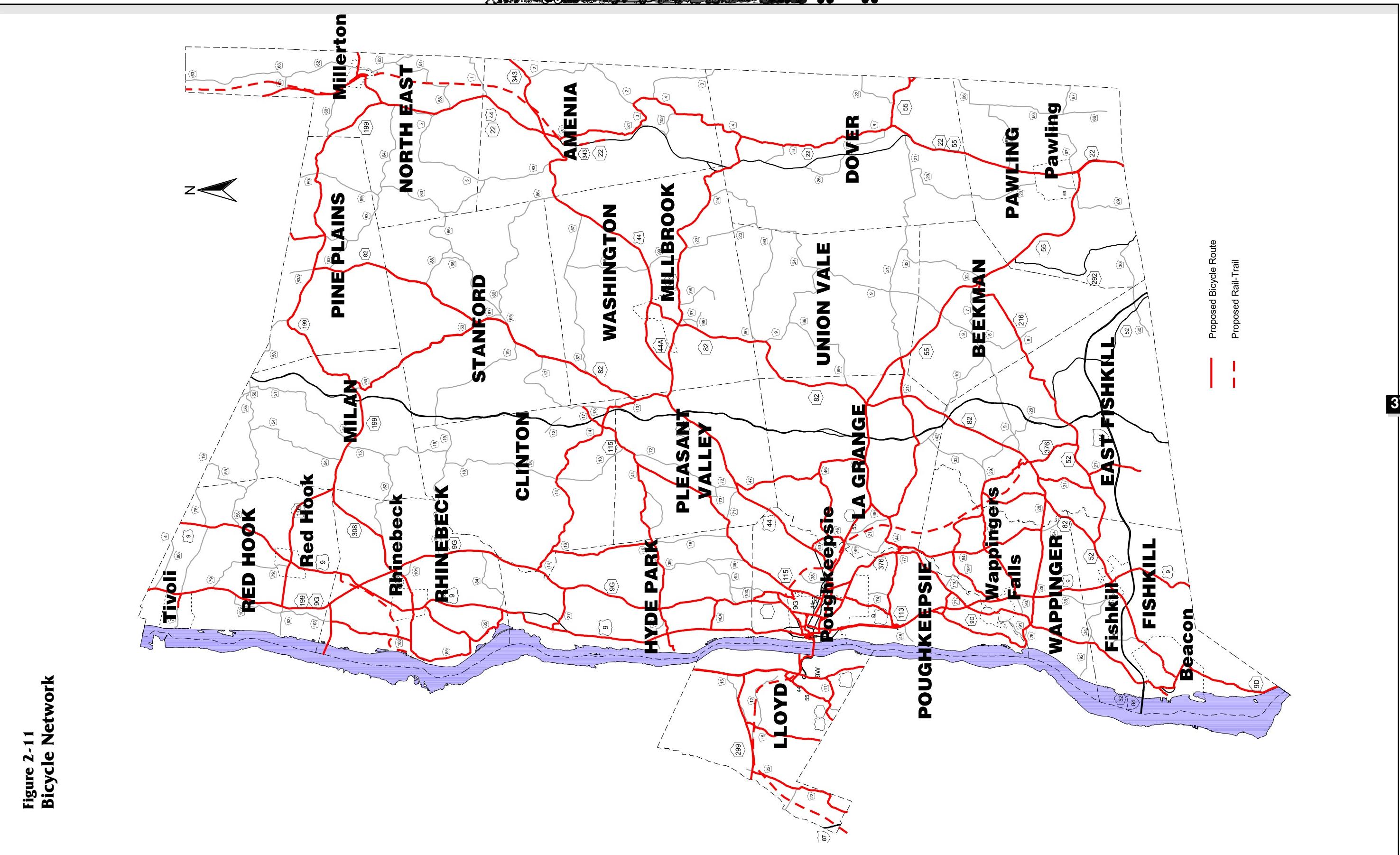


Figure 2.11
Bicycle Network



Figure 2-11
City of Beacon Bicycle Network

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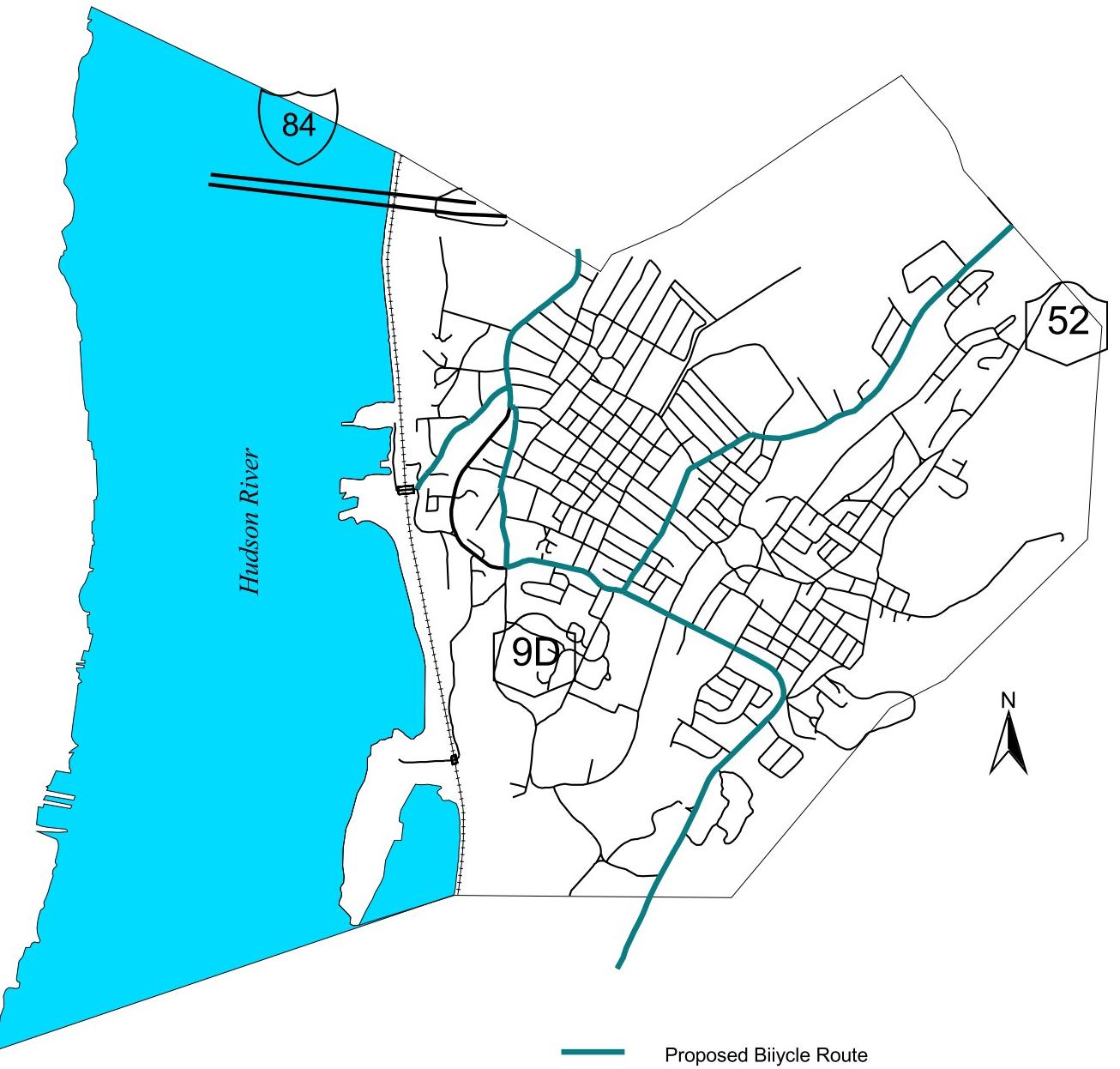
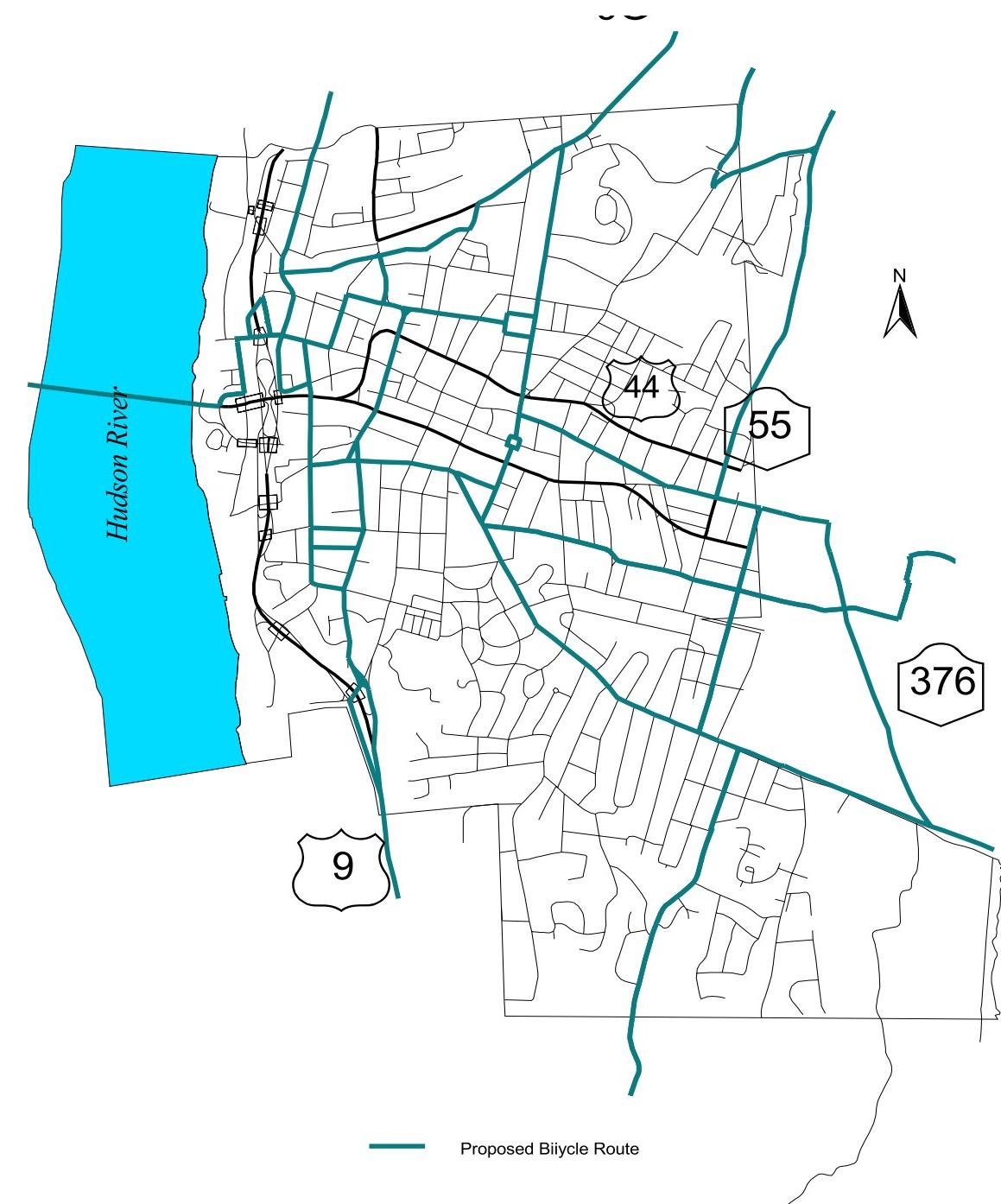
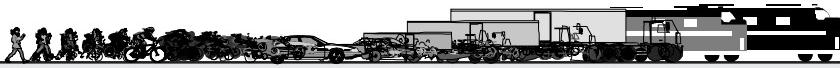


Figure 2-11
City of Poughkeepsie Bicycle Network

— Proposed Bicycle Route





III. Transportation Issues and Goals

The discussion of the metropolitan transportation system described the different elements and how they relate to one another. This chapter will discuss some of the current issues that must be balanced with one another in developing the long-range plan recommendations. The major issues identified by the PDCTC include:

- Infrastructure Maintenance
- Mobility and Congestion
- Safety
- Environmental Quality
- Land Use Impacts
- Economic Development
- Freight Movement
- Bicycle and Pedestrian Activities
- Enhancement Activities
- Demographic and Travel Trends
- Intermodal Opportunities

Most of the issues and goals presented in this element relate to the original “ISTEA 16 Factors” presented in Figure 1-2, including preservation of transportation facilities, congestion management, environmental and land use impacts, freight concerns, and implementation of enhancement activities. The overriding issue of financing and available resources will be covered in the next element (Financial Resources).

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Infrastructure Maintenance

To maintain a “state-of-good repair” for all elements of the transportation system.

The transportation network described in the previous chapter represents a major investment by both public and private interests. The network evolved slowly and over the years some elements of the network infrastructure have suffered from deferred maintenance. Poor pavement quality can affect speed and capacity, bridges can be posted or closed, and transit equipment may become unreliable or dangerous to operate. The costs of deferred maintenance are borne by the community at large in the form of increased delay and decreased efficiency. Over the long-term the costs of repair or replacement of severely deteriorated infrastructure far outweigh the cost of routine and periodic maintenance.

Mobility and Congestion

To provide for safe, efficient and cost effective movement of people and goods within the area and to and from other regions. To address congestion through appropriate systems and demand management actions.

The term “mobility” means many different things, but at its base it is the ability to move--efficiently, safely, and at a reasonable cost--from one place to another. “Congestion” is more easily defined as a situation where demand or volume (e.g. vehicles or passengers) meets or exceeds the capacity of the system to accommodate it. There is, however, some subjectivity in the perception of when congestion exists.

In Dutchess and Ulster counties private automobiles are by far the dominant mode of travel. The suburban and rural land use pattern, which includes dispersed work, shopping, and residential locations, the size of the two counties, and the ready availability of private automobiles in most households (and



for most individuals) make other alternatives (carpool, bus, rail, bicycle) less attractive for many trips. The reliance on automobiles is a major reason for the increase in vehicle miles traveled (VMT) in the region and corresponding increase in traffic volumes and congestion in some critical corridors.

In several corridors (Route 9W, Route 22, Route 55) major widening projects are underway. The opportunities for this type of large-scale solution to existing or projected congestion may be more limited in the future due to financial, land use, and air quality limitations. Other effective methods of improving the system operation or controlling demand will need to be identified and implemented. Appropriate management activities could include improved traffic operations, increased ride-sharing activity, access management on major highway facilities, and expanded transit services. Use of Intelligent Transportation Systems (ITS) such as variable message signs and electronic toll collection (e.g. E-ZPass) could also help alleviate congestion on key transportation facilities.

Safety

To improve safety and security on the transportation system (highways, transit, bicycles, etc.) with appropriate transportation improvement projects.

Safety in the transportation system is an on-going issue. Reducing the number of crashes and the accompanying property damage, injury, and death, is a concern in both highway and transit travel. There has been improvement in transportation safety in the past few years, but more can be done to identify and correct existing safety hazards, and to improve driver, passenger, bicyclist and pedestrian education programs.

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Environmental Quality

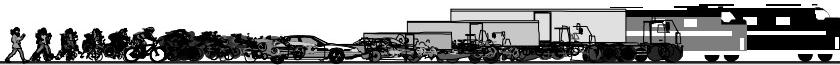
To improve environmental quality consistent with established standards and to balance environmental quality with mobility and economic activity.

Air Quality

Dutchess is part of the Poughkeepsie Nonattainment Area, which also includes Putnam and Northern Orange counties (Figure 3-1). The area was designated as moderate nonattainment for the ground pollutant ozone under the Clean Air Act Amendments of 1990 (CAAA). Ulster County is currently in attainment.

As part of a nonattainment area PDCTC must ensure that its long-range plans and transportation improvement programs (TIP) conform to federal transportation and clean air regulations. For moderate areas the requirements include reducing the emissions of ozone precursors (volatile organic compounds and nitrogen oxides), implementation of any transportation control measure (TCM) specified in the State Implementation Plan (SIP), development strategies to reduce hydrocarbon emissions by 15 percent, and attainment of the National Ambient Air Quality Standards (NAAQS) by 1996.

There are no transportation control measures required for the Poughkeepsie Nonattainment Area. New York State actions include adoption of California Car Standards and the sale of reformulated gasoline.

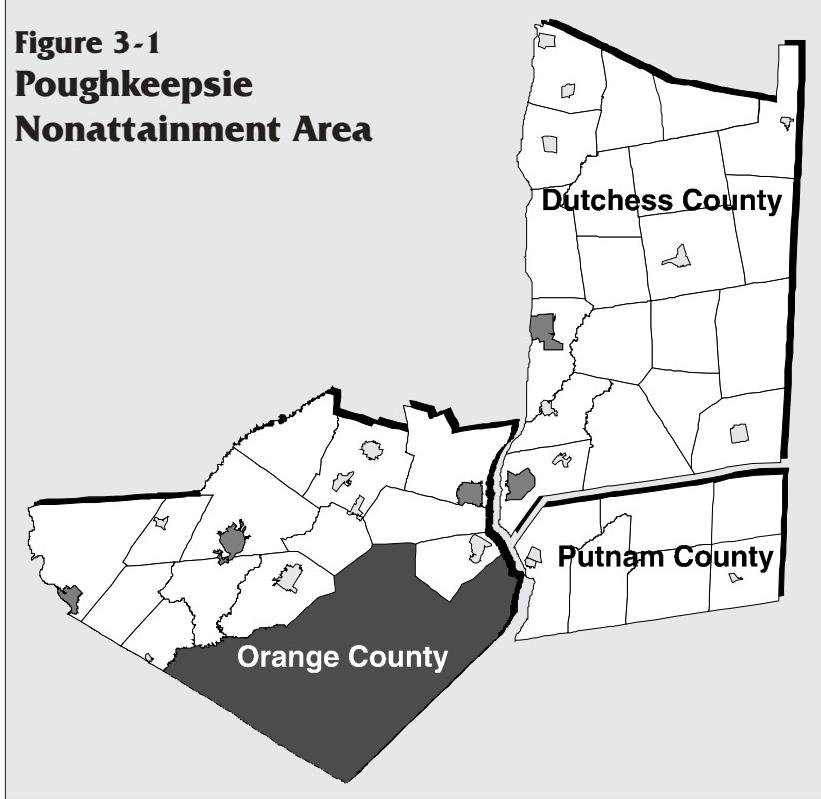


Additional activities or measures that could help Dutchess County meet the air quality standards include:

- improved transit service
- additional opportunities for ridesharing (car pools, van pools)
- traffic flow improvements
- employer-based flex time and/or transportation management programs
- increased use of non-motorized transportation (bicycling and walking)

No one type of activity will provide the emissions reductions required by CAAA. Success in improving air quality in the county will require a mix of actions and the cooperation of public and private interests.

**Figure 3-1
Poughkeepsie
Nonattainment Area**



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Other Environmental Issues

Concern for other environmental resources is also a priority in Dutchess and Ulster counties. Existing state and county plans and policies recognize the importance of protecting sensitive natural and man made resources. These resources include: wetlands, flood plains, streams and rivers, aquifer recharge areas, steep slopes, agricultural soils, historic and archaeological sites, and areas of scenic importance. The development, expansion, or rehabilitation of new transportation facilities (including support facilities) should minimize impacts on these important resources.

In recent years concern about the visual environment has increased in many communities. Some towns have taken steps to inventory and designate scenic roads and important view corridors. In these areas preserving existing stone walls, roadside trees, and other important features is a major concern. Even along roads not formally designated as scenic there is an interest in maintaining or establishing appropriate landscaping and design features to minimize the visual impact of widening, shoulder work, or other major reconstruction projects. Balancing safety and operational concerns with scenic concerns is a continuing effort. Defining what is scenic, the view from the road or the road itself, is also a major point of discussion.

Land Use Impacts

To establish stronger links between the transportation and land use planning and development processes. To improve communication and coordination among local, county, and state officials.

The links between land use and transportation are complex, and the need to strengthen them is a concern for federal, state and local decision makers. In some areas concerns about the cost of maintaining infrastructure, clean air impacts, and future development trends have focused attention on land



use planning to help manage the available transportation resources. In others, particularly villages and cities, there is interest in the concept of traffic calming, enhancing pedestrian facilities and safety as a way to improve quality of life.

In New York, there has traditionally been a strict separation between land use decisions made at the local level, and the construction and maintenance of major highways which are primarily the responsibilities of the county and state government. In many communities, the decisions about type, location, scale, and design of new development projects are made independently of decisions about maintaining, improving, or expanding the transportation system. Early and ongoing contact between local decision makers and state and county highway and transit agencies are needed to insure the proper coordination of land-use development to the transportation system.

Decisions about location and intensity of development, site design (including pedestrian and transit access to new activity centers), permitting access to the region's arterials, accommodating utility (e.g. water, wastewater, electric) expansion or replacement, evaluating environmental impacts, and capital investment should be discussed and coordinated at all levels to ensure that they are mutually reinforcing.

Economic Development

To implement transportation improvements that will support and enhance economic development opportunities in the region.

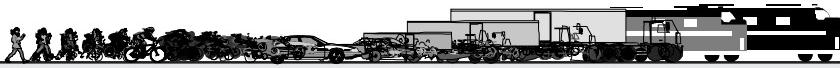
Until the early 1990s Dutchess County economy was one of the strongest in the state. Employment cutbacks at several large private and public employers affected the local economy, and spurred efforts to expand the regional economic base.

Transportation improvements and initiatives should complement county and regional efforts to attract new businesses, develop job opportunities, and expand the local economy. The efforts should build on the existing transportation system and expand facilities or service levels where needed. The key is to increase the ease of access within, to, and from the county for businesses, workers, and shippers. Improvements to passenger and freight rail service including high-speed rail, air service (common carrier, cargo, general aviation), regional highway facilities, and bus transit services all have a role in strengthening the local economy.

Freight Movement

To identify and implement projects that would improve the movement of freight within the metropolitan area.

Most of the freight movement in this area takes place by truck on public highways and roads, although rail and barge freight facilities do have a limited role. Improvements to the interstate and arterial highway network will be important for motor carriers that operate in Dutchess and Ulster counties. The acquisition of the major freight lines in Dutchess and Ulster by CSX Corporation may provide an opportunity to improve rail infrastructure and operations in the region. There also may be interest by other commercial railroad companies in expanding rail freight and re-establishing some abandoned facilities such as the Poughkeepsie Railroad Bridge and the Maybrook Line that once connected Orange, Ulster and Dutchess counties to Connecticut and New England.



Bicycle and Pedestrian Activities

To integrate bicycle and pedestrian improvements with other elements of the transportation system.

Bicycle and pedestrian facilities have frequently been considered as desirable but non-essential components of the transportation system. Bicycling has grown in popularity both for transportation and recreation in recent years, and there is much more interest in accommodating bicycles within the system. There has also been increased interest in developing more extensive sidewalk networks in villages and among adjacent complementary uses. The requirements of ISTEA and the Clear Air Act to develop alternate transportation methods and reduce reliance on single occupancy vehicles have also renewed interest in bicycling and walking as "real" means of transportation, especially for shorter trips.

Enhancement Activities

To incorporate transportation enhancement projects into the planning process.

The current ISTEA regulations require each state to program a portion of its federal highway funds for enhancement activities that have a direct relationship to the transportation system. Examples of eligible activities include new pedestrian and bicycle facilities, rehabilitation of historic transportation facilities, preservation of abandoned railroad corridors, and mitigation of water pollution due to highway runoff. The Transportation Enhancement program should be used to identify and implement projects that will improve a wide variety of transportation facilities and resources in this area.

Demographic and Travel Trends

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To develop a transportation system that is responsive to anticipated changes in demographics in the area.

Changes in socio-economic factors such as the number of people, households, workers, and automobiles have implications for travel patterns in the region. Until very recently the figures for all these characteristics were steadily increasing with a resulting increase in traffic volumes on area roads. Some of the trends that bear watching include: changing commuter patterns, the impact of aging population, the establishment of group homes to serve physically and developmentally disabled people, and new requirements for welfare to work programs.

Commuter Patterns - There is evidence that more Dutchess County residents work in other counties, principally Westchester and New York City. This daily out-migration for work will impact transportation facilities in the larger Hudson Valley and New York metropolitan regions.

Aging Population - As life expectancy lengthens and the baby boomers age, there are implications for both highways and transit. Many older residents will retain their licenses and their desire for independence despite changing abilities and driving skills. Others may become more dependent on transit services and/or walking as their primary mode of travel.

Group Homes - New York continues its policy of moving many patients from state institutions into group homes scattered among the communities in the region. Most of the residents are dependent on others for transportation to sheltered workshops, jobs, and recreation activities. Some agencies and non-profit organizations provide transportation for their clients, others rely on existing public transit systems. There may be opportunities for greater coordination of services by the various organizations to increase efficiency and improve service.



Welfare to Work - Federal and state policies have put an increased emphasis on moving people from welfare into the work force. Transportation can be one of the major obstacles to finding and keeping a job for many people. Coordination among transit providers, social services agencies, and employers will be necessary to meet the goals of this initiative.

The population and its needs are not static; they change in response to the economy, age, and other social forces and the transportation system cannot remain static either.

Intermodal Opportunities

To identify and implement projects that will expand the range of transportation options and facilitate movement among different modes.

ISTEA put the “intermodal” first, and there is interest at all levels in developing opportunities for greater transportation options for both people and goods. In Dutchess County efforts have been made to increase accessibility at the Metro-North stations, to expand the range of transit services (e.g. Commuter Train Connection), and to promote ridesharing (carpool and van pool) options for longer-distance commuters. Other programs include the completion of the Dutchess County Transportation Center, the initiation of new commuter services between Dutchess and Westchester counties, one-fare tickets between local bus and Metro-North, and transfers between the city and county bus systems.

Additional activities could include better coordination of fares and schedules among private and public transit systems, promotion of TransitChek use among employers, on-going marketing of transportation alternatives, and expansion of park and ride locations. The establishment of new park and ride lots is often complicated by issues of operating and maintenance responsibilities, and concerns about safety and security. Nevertheless, these types of initiatives will help the county and the region to meet transportation and air quality goals.

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Summary

The issues and goals discussed in this element reflect many of the same concerns highlighted by the ISTEAG Sixteen Factors. None of the issues can be considered in isolation. There are some potential conflicts and contradictions that need to be addressed as the recommendations of the Transportation Plan Update are implemented. The overriding goal is the evolution of a transportation network that serves the diverse needs in the area.



IV. Financial Resources

ISTEA requires that the long-range plan be fiscally constrained. All projects identified and adopted as part of the plan must have some assurance of being funded within the time period described. This requirement prevents the preparation of a "wish list" plan that ignores the realities of financial limitations. Instead, the transportation plan will evaluate the various proposals, and recommend those projects that will result in the best overall transportation system.

Any estimate of future fund availability is problematic due to difficulty of anticipating future federal and state transportation policies and priorities. Except for FTA Section 5307 (formerly Section 9) and 5311 (formerly Section 18) funds, and the FHWA CMAQ program neither Dutchess County nor the PDCTC metropolitan area receives a specific allocation of federal or state funds. These funds are allocated to the NYSDOT-Region 8 for distribution among the five urban/metropolitan counties (Dutchess, Orange, Putnam, Rockland and Westchester) and the two largely rural counties (Columbia and Ulster). Nevertheless, NYSDOT prepared resource estimates for federal and state capital funds through 2020 based on historical allocations among the state's regions and the region's counties. Other reliable sources of funds include those for the special authorities and county highway funds (general and bond). It is more difficult to estimate what resources might be available from local government (city, town, village) over the period of the long-range plan. The resource estimates include federal, state and local sources of funding even though the PDCTC programming responsibility is limited to federally funded projects.

This discussion focuses mainly on available capital funds. Although reliable projections of maintenance and operating funds are not available, it is assumed that sufficient funds will be committed by the various operating agencies to ensure the integrity of the transportation system. The estimates of available capital funds outlined here are based on reasonable expectations of the continuation of federal, state and local funding in a manner consistent with historical practices. They should not be interpreted as funding allocations.

For the purposes of the transportation plan, the resource estimates have been divided into two categories: short-term, which are included in the 1998-2002 transportation improvement program (TIP), and long-term, which cover the period 2003-2020. The plan recommendations will be similarly divided.

Federal Resources

Federal surface transportation funds are administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The major FHWA programs include National Highway System (NHS), Interstate Maintenance (IM), Surface Transportation Program (STP), Highway Bridge Replacement and Rehabilitation (HBRR), and Congestion Mitigation/Air Quality (CMAQ). Each of these programs has its own eligibility and project criteria, but there is a high degree of flexibility concerning the ability to transfer funds among the different categories.

The major FTA programs are Section 5309, Section 5307, Section 5311, and Section 5310. Each of these programs deals with a specific type of transit service. The Section 5307 and 5311 programs are formula programs that provide funding for urban and rural transit systems respectively. Section 5309 and Section 5310 funds are discretionary and distributed on a competitive basis among qualified projects.

For the period of the long-range plan, NYSDOT has estimated the following federal funding levels for the PDCTC metropolitan area, Dutchess County and Lloyd, based on 1996 appropriation levels. All figures are millions of matched federal dollars.



Figure 4-1
Estimated Federal Funds, 1998-2020
(\$ Millions)

	1998-2002	2003-2020	Total
FHWA Includes NHS, STP, IM, CMAQ, HBRR	128.32	463.68	592.00
FTA Section 5307	2.43	8.93	11.36
Total	130.75	472.61	603.36

Source: NYSDOT

46 The vast majority of the available federal funds will come through FHWA. If flexibility provisions of ISTEA are continued throughout the plan period, then the FHWA/FTA distinction may be less important.

State Resources

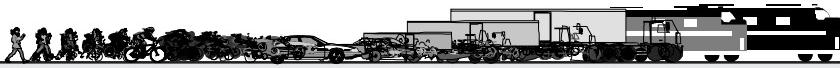
The other major source of transportation funds is New York State. The state makes a significant investment in transportation infrastructure at all levels of government through the State Dedicated Fund (SDF) and other local assistance efforts such as Consolidated Highway Improvement Program (CHIPs), the Suburban Highway Improvement Program (SHIPs), and, most recently, the Multi-Modal Transportation Program (MMT).

The estimates of state transportation resources assumes continuation of current programs at current levels and are classified as highway (including bridges) or transit.

Figure 4-2
Estimated State Funds, 1998-2020
(\$ Millions)

	1998-2002	2003-2020	Total
Highway	134.25	483.3	617.55
Transit	0.00	2.55	2.55
Total	134.25	485.85	620.10

Source: NYSDOT



As with the federal funds, the majority of the state resources are designated for highway and bridge uses. These figures do not include any state funds provided to county and local governments.

Dutchess County Highway Funds

The Dutchess County Department of Public Works is responsible for 394 miles of roads and 312 bridge and drainage structures over five feet in length. The county has an on-going commitment to maintaining these facilities. If current levels of funding are maintained, then Dutchess County will spend \$68.0 million of county bond money and CHIPS funds between 2003 and 2020.

Local Highway Funds

For the purposes of this discussion the assumption is that, in aggregate, the 31 municipalities will have \$2 million per year in local funds (including CHIPS) to spend on capital improvements. This results in a total of \$34.0 million over the plan period.

Transit Funds

Capital funds for the two bus systems, Dutchess County LOOP Bus System and Poughkeepsie Bus System, are generally limited to the amount required by federal and state program match. Both bus systems are expected to pay their share for future bus and equipment purchases.

Special Authorities

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Metropolitan Transportation Authority

As a division of the Metropolitan Transportation Authority (MTA), Metro-North Railroad is a public benefit corporation. This status means that the railroad is like any other corporation, with one major exception: it cannot issue bonds, nor can it borrow money in any other form. It must depend on its revenues and subsidies for both its everyday operating costs and its long-term capital costs. While fare box revenues accrue directly to the railroad, subsidies generally go to the MTA, which then distributes them to its divisions.

Metro-North's revenues are primarily from passenger collections (tickets), with additional revenues from rents and concessions. Subsidies are from the MTA and Connecticut Department of Transportation (CDOT). Metro-North's revenues for 1996 totaled \$300.4 million and expenditures totaled \$574.0 million.

Metro-North generally uses two major financial performance indicators, calculated on a monthly basis, as barometers to indicate how the railroad is doing with its revenues and expenses. These indicators are the Fare Operating Ratio (FOR) and the Costs Per Passenger (CPP). The FOR is the percentage of the railroad's expenses covered by passenger revenues, and the CPP is the dollar value of the railroad's expenses divided by the number of Metro-North passengers.

Metro-North's Fare Operating Ratio (FOR) has significantly improved since it was founded. From 1984 to 1996, the FOR went from 41.4 percent to 54.2 percent. In 1984, the Cost Per Passenger (in 1998 Budget dollars) was \$12.83, while in 1996, it was \$8.77.

Metro North's system wide capital needs for the period 1997-2016 are projected at approximately \$4.3 billion based on its Twenty Year Needs Assessment completed in 1996. This figure includes Metro-



North's current 1995-1999 Capital Program in the amount of \$939 million. Funding for Metro-North capital projects beyond 1998 will depend upon Metro-North having approved Capital Programs past that year.

New York State Bridge Authority

The New York State Bridge Authority operates five vehicle bridges over the Hudson River between Bear Mountain and Catskill. It is a wholly self supporting public benefit corporation, relying on toll revenues to meet the costs of operation, maintenance and rehabilitation of the facilities over which it has jurisdiction.

In 1996 toll revenues were \$21.3 million. Operating costs were approximately \$10.9 million and debt service \$5.1 million, allowing \$5.8 million to be allocated to capital rehabilitation projects. The Authority currently projects traffic growth at 2.2 percent per year in the foreseeable future, which it anticipates will generate approximately \$28 million for continuing capital re-investment in the bridges between 1998 and 2002, less than half the amount the Authority believes is necessary to maintain the integrity of its facilities.

Between 2002 and 2020, the Authority estimates, \$15 million per year will be required for rehabilitation and reconstruction of the existing facilities. Reductions in operating costs, and innovative financing programs are among the alternatives to increased tolls the Authority is exploring to meet these changes.

New York State Thruway Authority

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The Governor Thomas E. Dewey Thruway, the 641-mile highway crossing New York State, is the largest toll superhighway in the United States. The Thruway's 426-mile mainline connects New York City and Buffalo, the state's two largest cities. Other Thruway sections make direct connections with the Connecticut and Massachusetts turnpikes, New Jersey's Garden State Parkway and other major expressways that lead to New England, Canada, the Midwest and the South. The majority of New York's 62 cities including the nine largest are located within the Thruway corridor, which contains 80 percent of the state's population.

This highway network is operated by the New York State Thruway Authority, an independent public corporation created by the New York State Legislature in 1950. The Thruway Authority is financed through bonds being retired from tolls and other income. The capital program, maintenance, and operating expenses are funded out of these bond proceeds and toll revenues. In 1996, total revenues were \$359.5 million. The operating costs were \$195.8 million, and the debt service \$63.2 million. \$145.4 million was used for the capital program.

The Thruway Authority is also responsible for the capital program, maintenance, and operating expenses for the 524-mile New York State Canal System. In Dutchess County, the Thruway Authority is responsible for the maintenance and operation of I-84 from the New York State Bridge Authority toll plaza to the Connecticut state line, but the capital program is the responsibility of the New York State Department of Transportation.

Resource Summary

In the period covered by the Transportation Plan, approximately \$1.36 billion will be available to allocate among the various projects and programs that have been identified for the PDCTC metropolitan area (Figure 4-3). Cost estimates indicate that the plan recommendations can be accomplished with the available resources.

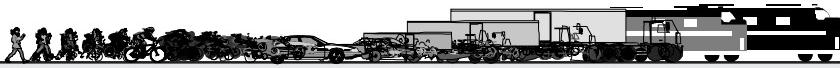


Figure 4-3
Financial Resource Summary, 1998-2020
(\$ Million)

	1998-2002	2003-2020	TOTAL
Federal Resources			
FHWA	128.32	463.68	592.00
FTA	2.43	8.93	11.36
TOTAL	130.75	472.61	603.36
State Resources			
Highway	134.25	483.30	617.55
Transit	0.00	2.55	2.55
TOTAL	134.25	485.83	620.10
Local Resources			
DC Public Works	20.00	68.00	88.00
Local Highway	10.00	34.00	44.00
DC LOOP Bus	0.59	0.98	1.57
Poughkeepsie Transit	0.10	0.36	0.46
TOTAL	30.69	103.34	134.03
GRAND TOTAL	295.69	1061.78	1357.49

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Financial Capacity Analysis

The Plan Recommendations element describes the major transportation projects and recommendations in the PDCTC area for the next two decades. ISTEA requires that the long-range plan be financially constrained, that is, that the estimated project costs do not exceed the resources that are expected to be available.

At the most basic level, the Transportation Plan Update meets the standard for financial constraint at both the short-range and long-range components of the Transportation Plan (Figure 4-4). There are, however, some issues regarding the balance of needs and resources that need further discussion. Of particular concern are local, especially municipal, highway needs, the ability of some of the special authorities to invest in infrastructure maintenance, the long-term operating costs for both existing and new services and facilities, and the current limitations on funding rail freight and intercity passenger projects.

Local Highway Projects

Local in this instance means non-state and includes county as well as municipal roads. During the short-term period the needs and resources are reasonably balanced. Long-term 2003-2020 local road infrastructure needs are estimated at \$190 million for the county and \$214 million for the municipalities. Available resources are estimated at \$68 million for Dutchess County and \$34 million for municipal projects. Although many county facilities are eligible for federal STP funds, most municipal roads are not. It is unlikely that the magnitude of the shortfall will be made up by state-generated funds such as CHIPs.



Figure 4-4
Financial Capacity Analysis, 2003-2020
(\$ Millions)

Estimated Resources	1,027.78*
Infrastructure Project Proposals	894.10*
Highway Infrastructure	635.00
State	525.00
County	110.00
Bridge Infrastructure	204.00
State	138.00
County/Local	66.00
Safety Infrastructure	39.00
State	25.00
County	14.00
Transit Infrastructure	16.10
State (Inter-county)	0.80
County	11.70
Poughkeepsie	3.60
Capacity and Mobility Project Proposals	121.80
Highway Projects	105.50
State	97.50
County	8.00
Transit Projects	15.00
Metro-North Parking	
Demand Management	1.30
NYS DOT	
Available for Programming	11.88

*Does not include either Local Highway Resources or Local Highway Infrastructure Projects.

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Metro-North Railroad (MTA)

Metro-North Railroad service area covers three different MPOs in New York, and the funds for the railroad were not specifically included in the PDCTC resource estimates prepared by NYS DOT. Although most of Metro-North's projects will have at least an indirect benefit for Dutchess County it is difficult to determine which of these projects will be wholly or partially funded by resources available to the PDCTC. For purposes of the Transportation Plan Update only those projects that are wholly located in the county were considered eligible for PDCTC funds. Funds for the larger system-wide projects are assumed to come from the other resources available to Metro-North.



New York State Bridge Authority

The Bridge Authority has identified a funding gap between its revenues and its anticipated capital needs during the period of this plan. Reduced operating costs, innovative financing, use of federal funds, and/or increasing the tolls are ways in which the Authority may close the gap. Like the MTA, the Bridge Authority is a regional agency that operates facilities in three MPO regions and three rural counties. For purposes of the [Transportation Plan Update](#) two major infrastructure projects, Mid-Hudson Bridge restoration, replacement or capacity improvements and the Newburgh-Beacon Bridge resurfacing, are considered eligible for PDCTC funds.

Operating Costs

As mentioned previously, neither the funding estimates nor the project costs specifically included operating and routine maintenance costs. The costs and activities vary by agency and include such items as snow plowing, filling potholes, right-of-way maintenance, personnel costs for operating transit services and toll facilities, and routine repairs.

Currently all jurisdictions, agencies, and authorities have the ability to operate their respective facilities and services. The [Transportation Plan Update](#) assumes that the operation of the existing transportation facilities will continue during the period of the plan. The issue of operating costs will need to be explicitly addressed in all projects that include expanded or new services. This is a particular concern where new services may compete with existing services for available operation or maintenance funds. There is a trend to capitalize operating costs which may erode available capital funds. This is driven by downsizing of maintenance forces and an increase in maintenance by contract.

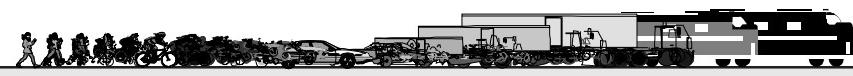
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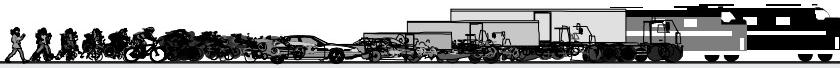
Freight and Intercity Passenger Rail

Current regulations prohibit use of FHWA and FTA funds for many freight and intercity rail projects. Some projects (i.e. right-of-way acquisition) may qualify for STP Enhancement program, but these funds are limited and the project selection process has been very competitive. If the prohibitions continue then funding from other sources will need to be identified for projects like the NYS High Speed Rail, and restoration of freight rail service on the Poughkeepsie Railroad Bridge/Maybrook Corridor.

Implications

If current assumptions hold true, there will be sufficient funding for projects and actions proposed in the PDCTC [Transportation Plan Update](#); it is financially constrained as required by the federal regulations. As projects are advanced to the TIP, there will need to be additional discussions regarding local highway projects, transportation operating costs, project funding for regional authorities, and non-transit rail projects. The PDCTC will continue its efforts to address these issues.





V. Plan Recommendations

The previous elements described the major facilities of the region's transportation system, outlined some of the issues that confront this system, and provided an overview of the anticipated financial resources that will be available for the plan period. The overall goal of this plan is to develop a combination of capital projects and other strategies that will enable the transportation system to meet the needs of the region. A key component of the transportation plan is the implementation of innovative solutions; solutions that focus on the mobility of people rather than the mobility of vehicles. Infrastructure maintenance, selected capacity improvements, expanded public transit, and demand management strategies are all integral components of the plan recommendations.

This element is divided into seven major sections. The first one highlights the **accomplishments** since the original Transportation Plan was adopted. The next two, **infrastructure** and **capacity**, list improvements that have been identified by the various transportation agencies in the metropolitan area. These projects are endorsed by the PDCTC and will be eligible for inclusion in future transportation improvement programs. The section on **management strategies** includes transportation demand management (TDM) activities, recommendations for managing growth and preserving transportation facilities, and proposals for improving transit service in the county.

The sections on **freight movement and bicycle and pedestrian facilities** highlight the major recommendations from the Bicycle and Pedestrian Plan and the Goods Movement Plan that were adopted in 1996. The final section is a list of **future studies**, which includes projects and issues that need further analysis and discussion before definitive recommendations can be endorsed by the PDCTC. In this way, this Transportation Plan Update and its recommendations will continue to evolve as new information becomes available.

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1. Accomplishments 1994-1997

Most of the following projects were listed as Short-Term Projects in the Transportation Plan adopted by PDCTC in 1994 or the Bicycle and Pedestrian Plan (1996). They have been substantially completed and/or fully obligated and no longer appear as plan recommendations in this Transportation Plan Update.

Capacity and Mobility - Highways and Roads

Route 9 Widening - Poughkeepsie and Hyde Park.

Route 9-Interstate 84 Interchange Reconstruction - Fishkill.

Route 55 Widening - Poughkeepsie and LaGrange.

Route 9G-CR 41 Intersection - Hyde Park.

City of Poughkeepsie Traffic Flow Improvements.

Capacity and Mobility - Transit

Dutchess County LOOP - Purchase of two vehicles for ADA service.

City of Poughkeepsie - Purchase of one vehicle for ADA service.

Express Bus Service - Poughkeepsie to White Plains sponsored by NYSDOT.



Metro-North Harlem Line Improvements - New passing sidings, high-level platforms.

Metro-North Parking Improvements - Beacon, New Hamburg, Pawling, Wingdale, and Dover Plains.

Dutchess County Transportation Center - Fishkill.

Beacon Ferry Pier Restoration (Enhancement Project) - Beacon.

Capacity and Mobility - Bicycle and Pedestrian

Dutchess County Harlem Valley Rail-Trail, Phase 1 (Enhancement Project) - Amenia and North East.

State Bicycle Route 9 - Signs were installed for the section of the route that runs from New York City to Montreal, Canada, a distance of 345 miles.

Hudson River Scenic Overlook - Build an overlook on Marist College campus with bicycle and pedestrian connections to Route 9 (Enhancement Project) - Town of Poughkeepsie.

Metro-North Projects - Metro-North installed bicycle racks at Dover Plains, Harlem Valley-Wingdale, Pawling and Beacon as part of station and parking improvement projects.

State Sidewalk and Shoulder Improvements - NYSDOT has constructed and/or rehabilitated shoulders and sidewalks as part of the following projects:

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Route 9/I-84 Interchange (0.8 miles) - Fishkill.

Route 9 (3.0 miles) - Hyde Park.

Route 9 (3.6 miles) - Fishkill and Wappinger.

Route 9D (5.7 miles) - Fishkill and Wappinger.

Route 9G (1.3 miles) - Rhinebeck.

Route 22 (5.2 miles) - Pawling.

Route 22 (1.0 miles) - Pawling.

Route 44/55 (2.7 miles) - Plattekill and Lloyd (Ulster County).

Route 55 (2.1 miles) - Poughkeepsie and LaGrange.

Route 82 (6.5 miles) - Washington and Stanford.

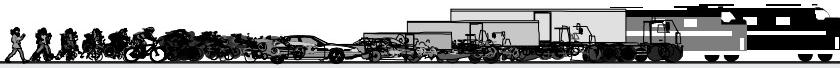
Route 308 (4.4 miles) - Rhinebeck.

Route 376 (4.4 miles) - Wappinger and East Fishkill.

Dutchess County Shoulder Improvements - DCDPW has constructed and/or rehabilitated shoulders as part of the following projects:

CR 16-CR 41 (1.2 miles) - Hyde Park.

CR 21-CR 33 (0.9 mile) - LaGrange.



CR 31 (2.2 miles) - East Fishkill.

CR 33 (0.5 mile) - East Fishkill.

CR 36 (0.5 mile) - Fishkill.

CR 74 (1.0 mile) - Poughkeepsie.

CR 91 (1.3 miles) - Wappinger.

Local Projects - It is difficult to gather comprehensive information about local bicycle and pedestrian projects. The City of Poughkeepsie did complete two important projects in the past three years.

Cedar Avenue shoulders (1.0 mile) - connects to CR 74 project.

Wilbur Boulevard Multi-Use Path - repaving and widening of path.

Other Activities - Enhancement Projects

Watts Depeyster Firemen's Hall - Restoration of Village Hall in Tivoli.

2. Infrastructure Maintenance and Safety

Projects in this category include regular maintenance, rehabilitation, and replacement of major transportation facilities and projects intended to improve safety of all travelers. Typical projects include pavement resurfacing and preservation, bridge repair and rehabilitation, replacement of transit equipment (e.g. buses, locomotives), and a wide range of safety improvements.

Projects in this section have been further divided into short-term (1998-2002) and long-term (2003-2020) projects. The short-term projects are included on the current PDCTC Transportation Improvement Program for FFY 1998-2002 with specific funding commitments by the responsible agencies or sponsors.

Some of the projects proposed by the state and regional transportation agencies, MTA Metro-North Railroad, NYS Bridge Authority, NYSDOT, and NYS Thruway Authority, are multi-county and/or system-wide in scope. These projects have the endorsement of the PDCTC, but their inclusion in the plan does not guarantee funding by the Transportation Council. In the past the PDCTC has agreed to fund some authority projects that had a direct benefit to the metropolitan area.

Short-Term, 1998-2002

- Highway Infrastructure - \$60.5 Million

Include 17 state and 6 county projects. The state projects cover over 18 miles of roadway while the county projects cover over 3 miles of roadway. Many local projects are not included on the TIP because they are not eligible for federal capital funds.

- Highway Infrastructure (NYS Thruway Authority) - \$3.9 Million

The NYS Thruway Authority plans two projects in the town of Lloyd; a resurfacing project and a bridge removal.



- Bridge Infrastructure - \$30.6 Million

Projects include 12 state and 26 county and local bridges.

Salisbury Turnpike Bridge (\$0.20 Million.) Restoration of bridge in the Town of Rhinebeck (Enhancement Project).

- Bridge Infrastructure (NYS Bridge Authority) - \$7.0 Million

The NYS Bridge Authority plans a walkway/bikeway replacement at the Mid-Hudson Bridge estimated at \$4 million. Additionally, the short term plan includes a rehabilitation of the toll plaza at the Mid-Hudson Bridge to include one additional toll lane. The cost for this project is estimated at \$3 million.

- Transit Infrastructure (Local) - \$2.9 Million

Includes regular replacement of 5 buses and eleven transit vehicles for the Dutchess County LOOP Bus System, and expansion of the LOOP bus system maintenance facility. Includes regular replacement of one bus, the purchase of one ADA vehicle, and the purchase of 10 additional shelters for Poughkeepsie Transit.

The following projects totaling \$1.5 million have been included in an amendment to the 1998-2002 TIP: an additional \$250,000 for the LOOP maintenance facility; an additional \$170,000 for the purchase of 11 transit vehicles for LOOP; \$1 million for the purchase of nine buses and one support vehicle for LOOP; \$25,000 for the purchase of a support vehicle for Poughkeepsie Transit.

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- Transit Infrastructure (Metro-North Railroad) - \$157.5 Million

Includes system-wide equipment replacement, installation of cab signals and passing sidings from Brewster North to Wassaic on the Harlem Line.

- Safety Improvements - \$22.1 Million

Four state and seven county projects are included in this category. Many infrastructure and capacity projects also have safety components.

- Traffic and Intersection Improvements - \$37.0 Million

Includes upgrading traffic signals and providing operational improvements at various intersections throughout Dutchess County.

- Elimination of Grade Crossings - \$14.0 Million

Elimination of at grade intersections along the Taconic State Parkway at Miller Hill Road (including the Appalachian Trail), Bogardus Lane, Stormville Road, Skidmore Road, Todd Hill Road, Mountain Road, and McDonnell Road, and elimination of Oniontown Road crossing of Metro-North railroad tracks on Harlem Line. The median is proposed to be closed at Arthursburg Road and the Taconic State Parkway and a northbound exit ramp built at Noxon Road.

The at-grade intersection of Hollow Road and the Taconic State Parkway as well as the improvement of the Hibernia Road intersection are part of a safety project along the Taconic State Parkway. The Hosner Mountain Road and the Taconic State Parkway intersection is being studied to determine how to close the intersection.



The crossing of the Hudson line at the Pirate Canoe Club (Town of Poughkeepsie) is going to be upgraded with a signalized gate crossing by Metro-North Railroad upon closure of a grade crossing in the Village of Croton (Westchester County).

- Other Projects - Poughkeepsie Transportation Strategy (1997)

Intersection Improvements - Reconfiguration of the Cottage and Clinton Street intersection (\$33,750 from Multi-Modal Transportation Program). Reconfiguration of the Main and Market street intersection, no money set aside for this project yet. The North Clover and Mill Street intersection improvements will be coordinated with the Neighborhood development project (\$56,200 from Multi-Modal Transportation Program and \$25,000 from Community Development Block Grant).

Streetscape Improvements - Streetscape improvements on Academy Street from Main Street to Cannon Street (\$25,000 from Community Development Block Grant).

- Special Projects - \$1.0 Million

Construction of acceleration/deceleration lanes for the future relocation of the median service area now located at Hosner Mountain Road in East Fishkill.

Long-Term, 2003-2020

- Highway Infrastructure - \$850 Million

Estimates for long-term pavement needs were made by NYSDOT-Region 8 for the state, county and local road networks. State needs are estimated at \$525 million, county at \$111 million, and local at \$214 million.

- Bridge Infrastructure - \$204 Million

Bridge infrastructure needs were also made by NYSDOT-Region 8. State needs are estimated at \$138 million, and county/local needs at \$66 million for the period 2003-2020.

- Bridge Infrastructure (NYS Bridge Authority) - \$95 Million

The New York State Bridge Authority anticipates two large infrastructure projects during the plan period. The replacement and/or rehabilitation of the main suspension cables on the Mid-Hudson Bridge is estimated at \$60 million. Both the north and south roadway decks of the Newburgh-Beacon Bridge will need resurfacing at a cost of \$35 million.

- Transit Infrastructure (Local) - \$15.3 Million

Regular replacement of buses/vans, support vehicles, service vehicles for the Dutchess County LOOP (\$11.7 million) and the Poughkeepsie Transit (\$3.6 million). Specific projects include farebox replacements for both systems, an ITS system for LOOP, new bus shelters for the LOOP system, and building improvements to LOOP maintenance facility.

- Transit Infrastructure (Metro-North Railroad) - \$1.6 Billion

System-wide equipment purchases of \$1.6 billion for maintaining rolling stock in a state of good repair for the 2000-2019 time period.



- Safety Projects - \$38.5 Million

Seven specific safety projects have been identified by NYSDOT and Dutchess County DPW for the 2003-2020 period. Other safety improvements may be implemented as part of the capacity and infrastructure projects.

Route 9-Route 44/55 interchange at the Mid-Hudson Bridge in Poughkeepsie (\$25 million). Design and construct modification to the interchange to improve safety. This project will require coordination with the New York State Bridge Authority.

CR 19 (Slate Quarry/Bulls Head Road) Rhinebeck, Clinton and Stanford (\$3.0 million). Realignment and reconstruction between Route 9G and the Taconic State Parkway.

CR 21 (LaGrangeville Road) LaGrange and Union Vale (\$2.0 million). Realignment and reconstruction between Cross Road and Jennifer Road.

CR 21 (East Noxon Road) Union Vale and Dover (\$3.0 million) Realignment and construction of shoulders from CR 9 east for 4.0 miles.

CR 41 (East Market Street) Hyde Park (\$2.5 million). Realign the road between Pine Woods Road and Route 9.

CR 77 (Vassar Road) Poughkeepsie (\$1.0 million). Realign and reconstruct the road between Route 376 and Sutton Park Road.

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CR 110 (Jackson Road) Poughkeepsie and Wappinger (\$2.0 million). Realign 0.5 miles of road and rebuild bridge over Wappinger Creek.

3. Capacity and Mobility

This section includes, by and large, capital projects intended to increase the ability of the overall system to meet anticipated levels of demand. Examples include: highway widening, construction of new roads, purchase of additional transit equipment, extension of rail lines, establishment of new service, and specific demand management projects. Additional strategies designed to improve the transportation system by reducing demand or increasing its efficiency will be included in the next section (**Management Strategies**).

This section includes those capital projects that have been identified by a specific agency or authority as a priority. There are several projects that need additional analysis before they are included as formal plan recommendations. These will be identified in the **Future Studies** (p.65) section.

Short-Term 1998-2002

- Highway Capacity Projects - \$13.5 Million

Route 9 in Wappinger and Wappingers Falls (\$7.2 million). Addition of a third southbound lane from Mesier Avenue to Middlebush Road and construction of a service road from New Hackensack Road to Myers Corners Road. This project also includes a new walkway on the bridge over the Wappinger Creek.

Route 9G in Poughkeepsie, Hyde Park and Rhinebeck (\$3.7 million). Improve operations at selected intersections.



Route 22 in Pawling (\$2.6 Million). Widen the existing highway from Brady Brook to Akindale Road.

- **Transit Capacity Projects (Local) - \$1.9 Million**

The three capacity projects involve the purchase of additional bus/van vehicles to expand service to areas or groups that are currently under served, and operational assistance for new transit services.

Express Bus Service (\$0.8 million). NYSDOT will purchase two commuter coaches for the White Plains express bus service from Poughkeepsie to White Plains.

Express Bus Service (\$0.3 million). NYSDOT is sponsoring a two year demonstration program to provide intercounty bus service between Newburgh (Orange County) and the Beacon train station.

Ferry Service (\$0.8 million). The proposed service would link Newburgh to the Beacon train station.

- **Transit Capacity Projects (Metro-North) - \$33 Million**

Poughkeepsie Parking and Intermodal Facility (\$12.0 Million). Construct a new parking deck facility and a new intermodal facility.

Beacon Parking Expansion (\$1.0 Million). Provision of additional parking spaces at Beacon station.

Harlem Line Extension (\$20.0 Million). Extend the Harlem Line service to Wassaic in the town of Amenia, and construct two new stations.

- **Demand Management Projects - \$3.1 Million**

Several short-term projects are designed to reduce automobile dependency and the implementation of appropriate travel alternatives in the area.

Park-and-Ride (\$0.7 million). Construct a new park-and-ride lot along the Taconic State Parkway in the vicinity of Hosner Mountain Road to facilitate ridesharing and, perhaps, transit use by intercounty commuters.

Regional Demand Management Program (\$1.2 million). The TDM Unit at Region 8 coordinates demand management activities in the region's seven counties (\$1.0 million), and MetroPool, a private, non-profit commuter transportation services company, provides assistance with specific projects defined by the PDCTC (\$0.2 million).

- **Bicycle and Pedestrian Projects - \$3.9 Million.** In addition to the projects listed below, the PDCTC intends to allocate funds for additional pedestrian and bicycle projects that will be identified through community planning activities.

Harlem Valley Rail Trail, Phase 2 (\$0.8 Million). Complete the construction of the rail trail between Millerton and Amenia.

Harlem Valley Rail Trail, Phase 3 (\$1.5 Million). Complete the construction of the rail trail between Millerton and Columbia County.

Wassaic Bicycle Pedestrian Pathway (\$0.4 Million). Construct a bicycle/pedestrian path connecting the new Wassaic station and the Harlem Valley Rail Trail. This is a Metro-North project.

Old Mill Store Preservation, Pleasant Valley - (\$0.5 Million). Build a pedestrian path along the Wappinger Creek between the old mill site and the town recreation park (Enhancement Project).



Hudson Highlands Trail Hub (\$0.1 Million). Development of a trail hub linking existing trails in Hudson Highlands State Park and the Beacon Greenway Trail System (Enhancement Project).

Rhinebeck Rail-Trail Conversion (\$0.02 Million). Conversion of abandoned railroad right of way to a rail-trail in the Town of Rhinebeck (Enhancement Project).

Rhinecliff Station Pedestrian Overpass (\$0.3 Million). Restoration of the Rhinecliff Station Pedestrian Overpass (Enhancement Project). This project has been combined with the Hutton Street Bridge replacement project.

Pawling Pathways (\$0.3 Million). Construction of a comprehensive bicycle/pedestrian path network in the Village of Pawling (Enhancement Project).

State Sidewalk and Shoulder Improvements - NYSDOT will work with appropriate municipalities to determine whether new and/or rehabilitated shoulders and sidewalks will be part of the following projects. Costs for these facilities are included in the overall project costs.

Route 9 (6.7 miles) - improved shoulders should be included in this project. Fishkill and Wappinger

Route 9D (0.8 miles) - new sidewalks between Howland Avenue and City Line. Beacon

Route 9D (6.5 miles) - maintain the shoulder and provide some sidewalks where needed. Beacon, Wappinger and Wappingers Falls

Route 9W (1.0 mile) - shoulders in the hamlet of Highland.

Route 44 (1.6 miles) - upgrading the sidewalks in the village of Millbrook.

Route 44 (9.5 miles) - rehabilitating the shoulders. Amenia

Route 44/55 (2.7 miles) - resurfacing shoulders between Route 32 and Chapel Hill Road in Ulster County.

Route 52 (0.7 miles) - resurfacing and construction of new sidewalks and crosswalks in the village of Fishkill.

Route 55 (4.0 miles) - improvement and repaving of shoulders. LaGrange, Union Vale and Beekman

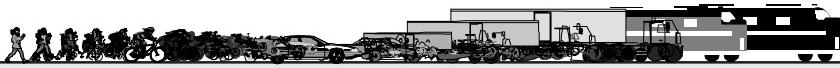
Route 199 (4.0 miles) - resurfacing project should include necessary shoulder work. Pine Plains

Dutchess County Shoulder Improvements - Where there is sufficient right-of-way DCDPW is adding three to five foot shoulders along its facilities. There has been some local opposition to these type of projects in the past, but the following projects on routes that are part of the Bicycle Network endorsed by the PDCTC. Costs for these facilities are included in the overall project costs.

CR 21 (Noxon Road) 2.8 miles - LaGrange

CR 28 (Old Hopewell Road) 2.6 miles - Wappinger

CR 31 (Palen Road) 2.1 miles - East Fishkill



CR 39 (Cream Street) 1.5 miles - Hyde Park

CR 40A (St. Andrews Road) 1.2 miles - Hyde Park

CR 49 (Titusville Road) 0.8 miles - LaGrange

CR 74 (Cedar Avenue) 10 miles - Poughkeepsie

CR 93 (Myers Corners Road) 1.4 miles - Wappinger

CR 93 (Myers Corners Road) 1.9 miles - Wappinger

Bridge Projects - There will be two four-foot shoulders on the decks when the projects are complete.

Code	Municipality	Route	Over
A-16	Amenia	CR 2	Webatuck Creek Tributary
B-8	Beekman	CR 9	Clove Creek
C-25	Clinton	CR 17	Wappinger Creek Tributary
D-35	Dover	CR 22	Ten Mile River
D-40	Dover	CR 26	Swamp River
L-30	LaGrange	CR 21	Jackson Creek
M-6	Milan	CR 51	Cold Spring Creek
N-40	North East	CR 61	Webatuck Creek
N-36	North East	CR 58	Webatuck Creek
U-28	Union Vale	CR 21	Fishkill Creek

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City of Beacon - South Avenue (Route 9D) 1.3 miles. Shoulder and possible sidewalk construction.

Metro-North - Bicycle storage needs for Poughkeepsie will be determined as part of the scoping for the parking and intermodal improvements at the train station.

- Other Projects - Poughkeepsie Transportation Strategy (1997)

Traffic Circulation - Evaluate the change of traffic from one-way to two-way on Catherine and Academy Street and whether to convert Hamilton and Market Streets to two-way traffic. In addition the City wants to convert the Main Mall to a street (\$37,500 from the Multi-Modal Transportation Program).

- Other Activities - Enhancement Project - \$0.012 Million

Tivoli Bays Archeology Research in Red Hook. (\$0.012 Million).

Long-Term 2003-2020

- Highway Capacity Projects - \$89.8 Million

These projects are intended to improve operations and meet existing and anticipated capacity deficiencies in the region. Other potential capacity and traffic operations projects are discussed in the **Future Studies** section of this element.



Route 9 in Fishkill (\$7.34 million). Reconstruction and the addition of passing zones between Route 301 (Putnam County) and I-84.

Route 9 in Fishkill and Wappinger (\$5.5 million). Widens to six lanes between Route 52 and CR 93 (Middlebush/Myers Corners Road).

Route 9D in Fishkill, Wappinger and Wappingers Falls (\$14.2 million). Selected intersection operation improvements between I-84 and East Main Street.

Route 52 Bypass in Fishkill (\$3.0 million). Construction of a new public road in the village and town of Fishkill between Blodgett Road and Route 52. The main portion of the road will be constructed by private developers as land in the vicinity is developed. Completion of the road will require construction of a new bridge over the Fishkill Creek.

Interstate 84 and Route 9D Interchange (\$30.8 million). Improve interchange and provide direct access to the Dutchess County Transportation Center.

Route 22 in Pawling (\$6 million). Widens the road from Route 55 to the Putnam County line to 4 lane divided highway.

Interstate 84 in Fishkill and Beacon (\$15.0 million). Widens I-84 from 4 lanes to 6 lanes from Orange County to Route 9.

CR 40A (St. Andrews Road) in Hyde Park (\$2.5 million). Widens the road to four lanes between Route 9 and Route 9G.

CR 93 (Myers Corners Road) in Wappinger (\$1.5 million). Construct continuous left-turn lane between Route 9 and Route 376 to improve operations.

Pendell Road Extension in Poughkeepsie (\$4.0 million). Construct a new road between Creek Road and Route 115 (Salt Point Turnpike) to facilitate access to Dutchess Community College.

- Transit Capacity Projects (NYSDOT) - \$0.8 Million

Express Bus Service (\$0.8 million). Replacement of two commuter coaches for the White Plains express bus service from Poughkeepsie to White Plains.

- Transit Capacity Projects (Metro-North) - \$215 Million

These projects are intended to meet anticipated demand for passenger rail service in the larger Mid-Hudson and New York metropolitan regions.

Equipment Purchase (\$200 million). System-wide equipment purchase to accommodate new passengers.

Metro-North Parking Expansion (\$15 million). Continue the program to expand and improve parking facilities at all Metro-North stations. Overall Metro-North Railroad is expecting to spend \$200 million system-wide on parking expansion.

- Demand Management Projects - \$1.3 Million

Continue to identify and implement appropriate demand management projects in Dutchess County. The following activities will be part of the TDM Program: car and vanpool promotion; transit marketing; oversight of Inter-County bus services; park-and-ride lot development; promotion of TransitChek;



and work-site trip reduction programs. These tasks will be carried out in large part by NYSDOT-Region 8 and MetroPool.

4. Management Strategies

Transportation in Dutchess and Ulster counties is highly automobile dependent, and there is concern that road and highway needs may outstrip the available financial resources during the next twenty years. In addition, Dutchess' status as a non-attainment area for ozone means that all new transportation projects must meet the requirements of the Clean Air Act.

The previous section contained a list of highway capacity projects to be implemented in the next 20 years. It is becoming clear, however, that there are limits to our ability to construct a solution to every identified need. Roads can be widened only so far before the cost of acquiring the right-of-way becomes prohibitive. Non-traditional methods of improving mobility, financing major capital improvements, and managing growth and development will be critical tools for transportation planning.

This section describes some of these non-traditional tools, and discusses their potential use in this metropolitan area. Some of them are familiar, others are untried. At the heart of the issue is the need to critically examine the conventional wisdom that more lanes will solve all capacity deficiencies. The major challenge in implementing effective management strategies is coordinating the actions of various public and/or private interests. The responsibility for these activities are shared among many interests, and successful implementation requires ongoing education, persuasion and coordination.

Transportation demand management (TDM) strategies are designed to manage existing capacity by improving efficiency or decreasing demand. The growth management activities are intended to strengthen the link between land use and transportation decisions. The discussion of transit service improvements includes potential non-capital projects that will increase efficiency and accessibility, and there is an overview of some technology improvements that could work in Dutchess and Ulster.

Transportation Demand Management (TDM)

Transportation demand management, as the name implies, is intended to manage demand for (principally) motor vehicle travel. Typical TDM strategies include the promotion of car pooling and van pooling, the implementation of parking restrictions, the expansion of public transit service, the adoption of differential tolls and/or parking fees, and the utilization of flexible work hours at large employment sites. The intention is to encourage people to use alternate modes of transportation where possible. Although these concepts are not new, most have not yet been widely used in Dutchess or Ulster counties.

Existing TDM projects in the area include the implementation of the Dutchess County LOOP Commuter Train Connection service to Metro-North Hudson Line stations and the construction of new park-and-ride lots in the two counties to facilitate transit and carpool use. The New York State Bridge Authority also created a carpool toll when the toll schedule was revised in mid-1989. Metro-North continues to invest in parking improvements at stations on both the Harlem and Hudson lines. Metro-North believes that these projects will enable it to lure additional customers out of their cars and onto the train. NYSDOT has also expanded ridesharing and other operations in Dutchess and Ulster counties.

These actions provide a good start for a TDM program but they are not sufficient to address the anticipated needs of the area. Other measures that could be used to alleviate system-wide or corridor congestion in this area are listed below.

- Park and Ride Facilities - Identify appropriate locations for park and ride facilities that would support existing and new ridesharing and/or transit activities. Priority should be given to locations that will serve demonstrated need. Potential sites include the Taconic State Parkway, I-84, Route 9 in south-



ern Dutchess, and Orange County (for service to Beacon station). Increased municipal concern about maintenance costs may require an organized regional response to the process of constructing and maintaining new facilities.

- Ridesharing Projects - Current NYSDOT efforts at ride share matching should be supported and expanded. Large public and private employers in Dutchess County should be urged to support ridesharing and transit alternatives for their employees.
- Toll Policies - Toll pricing on Hudson River Bridges and other regional facilities should encourage use of transit and ridesharing options. This is especially critical in those instances where the responsible agency or authority contemplates a major capacity increase. New automatic fare collection systems such as E-ZPass may permit greater latitude in toll collection. Implementation of new toll policies may require changes in state law.
- Marketing and Promotion - The existing transit and ride share programs should be marketed more aggressively, and there should be much greater coordination among regional transit agencies on matters of schedules, fares, and routes. Programs that encourage transit use such as TransitChek, which assists an employer in providing a maximum \$65 a month tax free transit commutation benefit to employees, can be used as part of a comprehensive marketing program.
- Pricing Strategies - The use of pricing mechanisms to affect travel demand is not very common in New York. Two strategies that could be useful are congestion pricing, and “cashing out” free parking. The use of congestion pricing, paying more to travel at peak times, is common practice in many transit systems, but it is not widely used on road and bridge facilities. The main goal of congestion pricing is to reduce peak time congestion by giving motorists a financial incentive to shift either time or mode of travel.

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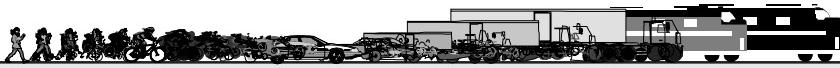
A free parking “cash out” program would charge employees for parking on-site. The money spent on parking would then be given to the employees for whatever they choose. Currently the employer cannot provide that money back to the employee in the form of tax-free TransitChek, although this is under consideration in Congress. Again, this strategy is intended to provide a financial incentive to employees to find alternate ways of traveling to work thereby reducing use of single-occupancy vehicles.

Transportation Demand Management is not a panacea for all congestion problems, but the creative and coordinated use of TDM strategies can alleviate congestion, and reduce the level of automobile travel and accompanying emissions in some areas of Dutchess County and in the larger Hudson Valley.

Growth Management

The Land Use Impacts goals described some of the issues surrounding land use and transportation planning and decision making. Concern about air quality issues and increased interest in development patterns that will support transit, walking and bicycling options has focused attention on land use and zoning controls as critical tools in managing the available transportation resources. Existing master plan, zoning ordinance, and environmental review processes should be used, and where necessary strengthened, to help address anticipated transportation problems.

- Master Plans and Zoning - Local governments should analyze land use plans to determine the potential transportation impacts of full development. New growth should be matched to available or projected transportation capacity. Land use and density determinations should be based, in part, on the level of congestion and available capacity on surrounding roads. This type of analysis is critical in major highway corridors where opportunities for additional widening are limited.



Zoning and site plan regulations should include provision for transit, bicycle and pedestrian access in all major development projects.

- State Environmental Quality Review Act (SEQRA) - State, county and local governments should utilize the SEQR process to assess the long-term impacts of major development proposals on existing and proposed transportation facilities. Adequate mitigation should be required for all adverse impacts, including the cumulative impacts of smaller scale projects.
- Access Management - Develop strategies to protect capacity of major highway corridors in the two counties. Potential actions include limiting the number of individual access points, requiring the construction of service roads for new development or redevelopment projects, purchasing or otherwise reserving right-of-way in corridors where widening is anticipated, and ensuring that major activity centers are easily accessible by transit services and bicycle and pedestrian facilities. The use of this strategy will require closer coordination between local planning and zoning boards and the state and county highway permit officials to ensure developer compliance.

The recommendations outlined above are intended to strengthen the existing regulatory mechanisms, and improve coordination among local, county and state officials. Responsibility for implementation must be shared among the PDCTC, its constituent governments and agencies, and other interested parties. Decisions about land use and transportation resources must be complementary if we are to maintain the quality of life in the county.

Transit Service

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Transit service is an essential service to some residents in the county. Without reliable transit service, these residents would be unable to travel to jobs, schools, stores and services. Other county residents use the bus and rail services by choice because they feel it saves them time or money, or is more convenient than a car for a particular trip. The challenge is to increase the use of transit by those who have a choice while maintaining the base line service for those who are transit dependent. The need for a balanced transportation system will be even more important in the future as welfare reform programs move people "from welfare to work," and as the baby boom ages.

Dutchess County and the city of Poughkeepsie completed a Transit Development Plan (TDP) for bus service in 1990 that included recommendations intended to improve the efficiency of the current systems and expand service into new areas.

- Merge the Poughkeepsie Bus System and Dutchess County LOOP into a unified system.
- Improve inter-county transit service. The greatest needs are for service between Dutchess and Orange, Ulster, Westchester and Litchfield (Connecticut) counties.
- Improve intermodal links, especially between bus and rail services.
- Improve accessibility of services for the disabled.
- Coordinate transportation services currently provided by various social service agencies and not-for-profit organizations for their clients.
- Increase use of transit for peak hour and off-peak travel by improving service, comfort and ease of use for all riders.
- Expand service for reverse peak and intermediate travel.



Some of these activities are already underway. The Dutchess County LOOP Bus System has established feeder bus service to the three Hudson Line stations (Beacon, New Hamburg and Poughkeepsie). In addition, Metro-North is incorporating “intermodal areas” in their station and parking lot improvement designs to facilitate bus access. In the area of inter-county bus service, NYSDOT sponsored demonstration projects for service between Dutchess and Orange, and between Dutchess and Westchester. In addition, Poughkeepsie Transit, Dutchess County LOOP, and Metro-North have taken steps necessary to comply with the Americans with Disabilities Act (ADA).

Technology Improvements

Innovations in transportation technology hold some promise for improving efficiency and operations of our highway, bridge, and transit services. National efforts to develop practical low/zero emission vehicles may have a positive impact on air quality in the metropolitan area as availability and use become more widespread. Telecommuting, electronic links between home and office, could also help to decrease travel and pollution emissions in the region.

Intelligent Transportation System (ITS) efforts to automate fare collection, develop “real time” transit scheduling and dispatching, install electronic toll collection, and implement regionally-linked variable message signs could be incorporated into existing systems.

NYSDOT-Region 8 is in the midst of developing an “early deployment” planning study for ITS in the Lower Hudson Valley, including Dutchess County. The study focuses on the regional transportation network (freeways, major arterials, regional transit). Goals of ITS are to reduce congestion, improve mobility and safety, and manage the overall system more effectively. The Early Deployment Study recommended the implementation of an Advanced Transportation Management System (ATMS) on NYSDOT and NYS Thruway facilities. The system will include information on traffic flow, weather conditions, transit vehicle location and monitoring, and integrated traffic control systems in some locations. Implementation of ITS projects in Dutchess and Ulster counties will be pursued where appropriate and cost effective.

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5. Freight Movement

The primary method of freight movement in the area is by motor carrier which requires a good network of arterial and collector roads. No specific freight related projects have been identified, although many of the projects listed in the first two sections, **Infrastructure and Capacity**, will improve conditions for trucks as well as other vehicles.

The primary issue for rail freight is the maintenance and improvement of physical facilities and levels of service on existing rail lines in the county. Particular concern has been expressed about the Harlem Line, the Beacon line, and the Poughkeepsie Hospital spur and rail yards. A secondary issue is the protection of rail rights-of-way for future transportation uses.

There has also been some interest in reviving rail service on the abandoned Maybrook line from Maybrook in Orange County across the Hudson River at Poughkeepsie to Hopewell Junction and beyond. Due to questions about right-of-way control and possible conflicts with other proposed projects this issue will be explored in greater detail by NYSDOT during the next few years (see **Future Studies**).

The recommendations adopted in the Goods Movement Plan in 1996 are still valid. Priority actions include:

- Maintain the existing infrastructure needed for freight movement.
- Encourage Metro-North to accommodate freight rail service on the Beacon Line.



- Establish a freight committee to concentrate on freight-related issues and provide feedback to the PDCTC.

The other outstanding issue is the impact that the CSX takeover of the existing Conrail facilities may have on rail freight operations on the two Hudson lines (east and west).

6. Bicycle and Pedestrian Facilities

The Bicycle and Pedestrian Plan adopted by PDCTC as part of the Transportation Plan in 1996 also includes recommendations that are still valid. The primary recommendations were the establishment of the Pedestrian Zones and the identification of the regional Bicycle Network which were described in the **Metropolitan Transportation Systems** element.

In designated Pedestrian Zones the plan recommends the construction and maintenance of sidewalks and other facilities, and the implementation of traffic calming techniques in community centers to slow automobile traffic and encourage greater pedestrian use. Techniques include road "neckdowns," street trees, shorter curb radii, planted medians, and textured or striped crosswalks. PDCTC and the Dutchess County Planning & Development Department have been working with local communities to develop "community pedestrian plans" for some of the villages and hamlets in the region. These plans identify specific projects and activities designed to improve pedestrian access and comfort. Plans have been completed or are underway for Highland (Lloyd), Tivoli, Stanfordville (Stanford), Red Hook, and Millbrook.

For those roads identified as Bicycle Routes the plan recommends, at a minimum, a four-foot paved shoulder or, in urban areas, a 14 foot curb lane. NYSDOT and Dutchess County Public Works continue their efforts to construct and maintain facilities that comply with these recommendations, however, implementation has not been without controversy. In some communities concern for visual character of the roads, particularly county roads, conflicts with the attempts to provide the wider, paved shoulders for bicycle use. There is a need for better communication among the various interest groups to address these concerns prior to design and implementation. In some cases it may be appropriate to include landscaping along the road to minimize the visual impact of the shoulder project.

Other recommendations in the Bicycle and Pedestrian Plan focus on making the transportation system more bicycle and pedestrian friendly by providing appropriate support facilities. Issues such as eliminating physical and institutional barriers, better educational programs for bicyclists, pedestrians and motorists, consistent enforcement of existing laws, better signage, and improved safety and security are identified and discussed.

7. Future Studies

In the course of developing this Transportation Plan Update many issues and projects were proposed and discussed. This section contains brief descriptions of some projects and issues that require additional analysis before they can be included as part of the long-range plan. The PDCTC and its members will refine the list of future study issues in the development and adoption of its annual unified planning work programs. As the studies are completed, appropriate projects and activities will be incorporated into the Transportation Plan, and eventually, into future transportation improvement programs.

Elimination of Grade Crossings - The elimination of the remaining at-grade intersections (including the Appalachian Trail crossing) along the Parkway either by constructing grade-separated interchanges or closing and re-routing the cross-roads is a continuing concern for state and local officials. Obviously, this recommendation must be studied carefully because the circumstances at each intersection are unique, and there are serious issues of access and safety that must be addressed. Intersections that are to be considered include: Carpenter Road (East Fishkill), Rossway Road (Pleasant Valley), Masten Road



(Pleasant Valley), Germond Road (Clinton), Willow Lane (Clinton), Pumpkin Lane (Stanford), Nine Partners Road (Stanford), Willowbrook Road (Milan), Cold Spring Road (Milan), North Road (Milan) Wilbur Flats Road (Milan), and Ferris Road (Milan).

In addition to the at-grade intersections along the Taconic State Parkway, improvement/elimination of at-grade intersections with railroad tracks is a continuing concern for state and local officials. Several crossings of the Hudson/Empire line are being considered for work: Bank Street (Chelsea), River Front Road (Private, Hyde Park), Water Front (Private, Tivoli) and River Road (Staatsburg). In the short term improved crossing gate systems will be investigated. Over the longer term depending upon how the improved gate systems work and the future train speed limit, a gate system could be retained, grade separations could be built, or crossings could be eliminated by purchase of the riverside land-use. The construction of grade separations in most of these locations is difficult if not impossible given the proximity of the Hudson River and lack of suitable land area for a structure. Each location will require a unique solution.

Mid-Hudson Bridge - The New York State Bridge Authority is monitoring a condition identified as "stress corrosion hydrogen embrittlement" that has reduced the weight-bearing capacity of the main cables of the Mid-Hudson Bridge. Procedures designed to retard further deterioration have been implemented and periodic inspections will continue to be scheduled. If corrosion continues, however, replacement of the existing cables or augmentation with additional cables may be required early in the 21st century.

Additionally, the NYS Bridge Authority will continue to evaluate its role in meeting the capacity and mobility requirements of the region. The authority is currently implementing electronic toll collection (E-ZPass) at all its facilities and will study the need for other transportation demand management strategies as well as capacity improvements in response to the projected transportation needs of the corridor.

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State Highway Capacity - NYSDOT has identified several arterial highways that may experience capacity/mobility problems before 2020.

- Route 22 between Route 55 and Columbia County
- Route 44 between Overocker Road and Taconic State Parkway
- Route 55 between Noxon Road and Taconic State Parkway

In all cases NYSDOT will study the capacity and mobility needs within the corridor and fully examine all possible alternatives including demand management techniques, improved transit, stricter land use and access controls, intersection improvements, community center bypasses, and widening to determine the best course of action.

Wappingers Falls Transportation Plan (Route 9D) - Traffic on Route 9D in the village center creates problems for pedestrians, bicyclists and motorists trying to maneuver in the business district. Concerns about safety and accident rates have also been raised. This recommendation was included in the 1994 Transportation Plan, and will be completed in 1999.

Metro-North Railroad - Metro-North identified four projects that warrant additional analysis. These projects are from the Metro-North 20 Year Capital Needs Assessment (1996). Funding for Metro-North capital projects beyond 1999 will depend upon Metro-North having approved Capital Programs past that year.

Beacon Line Service - Metro-North purchased this line (formerly known as the Housatonic Line) from the Connecticut border to Beacon. MNR is currently using the line to cycle equipment among its three lines. In 1997 Metro-North initiated a Beacon Line Feasibility Study to determine the potential for passenger service between southern Dutchess County and Westchester County.



Hudson Line Extension - Metro-North is examining the possibility of extending service into northern Dutchess County. The original proposal was for new service to Rhinecliff, but there is interest in extending service to Tivoli.

Hudson Line Service to Penn Station - This project will study the potential to introduce Metro-North service into Penn Station from the Hudson and New Haven Lines.

Trans-Hudson Rail Crossing - In February 1994, Metro-North completed a study examining the feasibility of constructing a new Hudson River rail crossing which would connect Orange and Rockland Counties with Putnam, Dutchess or Westchester counties, providing direct rail service for west of Hudson customers to Grand Central Terminal. Six possible alternatives were identified for more detailed analysis. The next step in the planning process is a Major Investment Study (MIS), during which the less cost-efficient alternatives may be eliminated from further consideration. This project is currently on hold.

Poughkeepsie Railroad Bridge - The railroad bridge has inspired a wide range of proposed uses from several different advocates. The current owner has expressed no specific plans publicly, and the U.S. Coast Guard has stated that without a legitimate transportation use it views the bridge as a hazard to navigation that should be removed. Among the proposals for using the bridge are (1) restoration of heavy rail service (passenger/freight), (2) construction of a bicycle/pedestrian path, and (3) establishment of a light rail loop linking Dutchess, Orange and Ulster counties. There is no consensus about the most appropriate use for the structure, and NYSDOT has agreed to coordinate a study of the railroad bridge and the associated rail corridors on both sides of the Hudson River.

Maybrook Line - There has been a high level of interest in re-using the former abandoned Maybrook Line for a variety of transportation purposes. Dutchess County owns the right-of-way between Poughkeepsie and Hopewell Junction and plans to construct a two-lane road (CR 11). Other potential uses include (1) restoration of heavy rail (passenger/freight), (2) establishment of a tri-county light rail loop linking Dutchess, Orange and Ulster counties, (3) dedication for bicycle/pedestrian uses. There is not yet any consensus, and this corridor will be included in the NYSDOT study mentioned previously.

Poughkeepsie Intersection Improvements - The Poughkeepsie Transportation Strategy completed in mid-1997 include recommendations for modifications to two major intersections, Smith-South Clinton-Mill (Route 44/55), and Washington-Mill (Route 44/55). Both intersections are on the westbound arterial and require coordination between the city and NYSDOT. The state has agreed to examine these intersections to determine if modifications are possible.

Bicycle and Pedestrian Projects - Previous planning studies identified some projects and activities that have not yet been programmed. Some are relatively simple to implement, others are more complex, requiring inter-agency coordination. Some of the outstanding issues include:

Creek Road and Pendell Road Sidewalks - To link City of Poughkeepsie with Dutchess Community College.

Newburgh-Beacon Bridge - Improve safety of I-84/Route 9D interchange by establishing the "stop line" behind the entrance to the path.

Mid-Hudson Bridge - Improve pedestrian and bicycle access on both east and west sides. Link to Lloyd rail-trail project.

Kingston-Rhinecliff Bridge - Clearly delineate bicycle lane on the bridge and improve the west side (Ulster County) access.



Wilbur Boulevard Multi-Use Path - Extend path and/or signage south to Spackenkill Road (Route 113) and north to Bike Route 9 at Hooker Avenue.

Route 9 Crosswalks - NYSDOT will be examining this highway between Fishkill and Hyde Park to determine where to establish high-visibility crosswalks, sidewalks and/or refuge islands.

Village of Wappingers Falls Crosswalks - The council will study the Route 9D corridor between the Village and the South Hills Mall to determine where pedestrian improvements; high-visibility crosswalks, sidewalks and/or refuge islands, might be needed.

Maybrook Corridor Rail-Trail - Dutchess County has agreed to let communities use its right-of-way on an interim basis. Interest in this project may depend on the status and outcome of the NYSDOT Maybrook Corridor Plan.

Beacon Line Rail-Trail - The potential of establishing a rail-trail along the Beacon Line should be examined. This facility could link with the Putnam County rail-trail.

In addition to these ideas and projects, several municipalities are moving forward with local efforts to establish recreation and transportation facilities for pedestrians and bicyclists. Among the more active projects are the Hyde Park Greenway Trail between Staatsburg and the Roosevelt National Historic Site, the Wappingers Falls Greenway Trail around Wappinger Lake, the LaGrange Greenway Trail, and the Poughkeepsie Greenway Trail between Marist College and the DeLaval Site.

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Dutchess County Transportation Center (Phase 2) - The expansion of the intermodal center to connect directly to Interstate 84 will be examined as part of the analysis and design of the I-84-Roue 9D interchange project.

NYS High Speed Rail - New York State is pursuing a series of steps designed to upgrade the service on the Empire Corridor between New York City and the Niagara Frontier.

The Transportation Plan Update is not a static document. ISTEA regulations require that the MPO re-examine its long-range plan every three years to ascertain that it is still relevant for the metropolitan area. As the issues outlined above are studied and alternative actions developed the Transportation Plan Update will be amended to reflect the changes.



VI. Air Quality Conformity Analysis

Air quality has become an increasing concern as the nature and extent of pollution have become better identified and its adverse effects upon the public health made clearer. In 1990 Congress passed the Clean Air Act Amendments (CAA). This legislation updated the National Ambient Air Quality Standards and, with ISTEA, it linked transportation planning to air quality improvement efforts. Areas where the air quality does not meet the standards must show that transportation projects will reduce motor vehicle emissions. The CAAA (1990) established a safe level of ozone at 125 parts per billion.

Dutchess County is part of the Poughkeepsie Ozone Nonattainment Area which also includes Putnam and Northern Orange counties (the area is sometimes referred to as the Mid-Hudson Nonattainment Area). The air quality monitoring station in Millbrook (Dutchess County) measured occasional exceedences of the established limit in the late 1980s and early 1990s, and in 1991 the area was designated a Marginal nonattainment area with an expected attainment date of 1993. There were additional exceedences measured during 1991 and 1993, and the region was designated a Moderate nonattainment area in late 1994.

Additional monitors were established in Putnam (Mount Ninham) and Orange (Valley Central) counties to measure the ozone levels in other locations. By the summer of 1997 the Poughkeepsie Area had met the requirements of the 1991 NAAQS (Figure 6-1). EPA issued a final rule stating that the area had met the applicable one-hour standard.

Figure 6-1
Ozone Exceedences 1991-1997
Mid-Hudson Nonattainment Area

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Date	Monitor Location	Reading (ppm)
07/19/91	Millbrook	0.13
08/17/91	Millbrook	0.126
1992	No Exceedences	
07/06/93	Millbrook	0.139
07/14/93	Millbrook	0.15
07/20/94	Millbrook	0.134
07/27/94	Mt. Ninham	0.132
07/04/95	Mt. Ninham	0.129
07/13/95	Mt. Ninham	0.127
07/07/96	Valley Central	0.134
07/09/96	Mt. Ninham	0.125
1997	No Exceedences	

In mid-1997 the Environmental Protection Agency adopted new, stricter standards that lowered the acceptable ozone standard, and instituted a longer time measurement (eight hours v. one hour). The new eight-hour standard is scheduled to go into effect in the year 2000. Although the Poughkeepsie Area has met the old one-hour standard, there is some concern about whether it will meet the new eight-hour standard. Areas that do not meet the eight-hour standard will be identified in 2000, based on monitoring data from 1997, 1998 and 1999. For this reason, Dutchess County will continue to evaluate its plans and programs to ensure that they conform with the requirements of the CAAA.



Plan Recommendations

The PDCTC staff completed the required analysis of the Transportation Plan Update. CAAA and ISTE regulations require that transportation planning documents, such as the Transportation Plan Update, demonstrate that they will make the air cleaner. The process of showing that the plan is in compliance

Figure 6-2
Air Quality Conformity Projects (Non-Exempt)

Short-Term (1998-2003)

- Highway Projects
 - Route 9 Widening (Fishkill/Putnam County) - 2005
 - Route 22 Widening (Pawling) - 1998
 - I-84-Route 9 Interchange (Fishkill) - 1998
 - Route 9 Widening (Wappingers Falls/Wappinger) - 2003
- Metro-North Rail Service Expansions
 - Harlem Line Wassaic Extension (Amenia) - 1999
 - Hudson Line Parking Improvements
 - Beacon - 1998
 - Poughkeepsie - 2001
- Demand Management and CMAQ Projects
 - Taconic Park-and-Ride Lot (East Fishkill) - 2005
 - TDM Unit Activities - On-going
 - Regional Ridesharing Program (MetroPool) - On-going
 - Poughkeepsie City Traffic Flow Improvements - 1998-2000
 - Harlem Valley Rail Trail (Amenia) - 2000
 - Regional Bus Services - Dutchess, Orange, Westchester counties
 - Dutchess to western Westchester - In service
 - Newburgh (Orange County) to Beacon - 1998

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Long-Term (2003-2020)

- Highway Projects
 - Route 9 Widening (Fishkill, Wappinger) - 2010
 - Route 52 By-Pass (Fishkill) - 2010
 - I84-Route 9D Interchange (Fishkill) - 2005
 - I84 Widening (Beacon/Fishkill) - 2010
 - CR 40A Widening (Hyde Park) - 2005
 - Pendell Road Extension (Poughkeepsie) - 2005
- Demand Management and CMAQ Projects
 - MNR Parking Expansion (Systemwide) - 2005+
 - Ferry Service (Beacon, Newburgh) - Unknown
 - TDM Unit Activities - On-going



with these requirements involves modelling all recommendations that affect air quality using an EPA computer program called MOBILE 5B. This air quality modeling software produces rates of volatile organic compounds (VOC) and nitrogen oxides (NOx) that vehicles in the Dutchess County area are likely to emit in various conditions for milestone forecasting years.

The first step was determining which projects might affect air quality. In general, projects such as safety improvements, resurfacing, bridge repair, or bus replacement which simply maintain current levels of capacity and service are considered exempt from the conformity analysis. Similarly, projects that result in operations improvements, but do not increase capacity like intersection widening, are also excluded from the analysis.

Non-exempt projects include highway and road projects that increase capacity by at least one travel lane, transit projects that change capacity on a fixed route system (bus or rail), and any project that receives Congestion Mitigation Air Quality (CMAQ) funds. A summary of the short-and long-term plan recommendations that were included in the air quality modeling process is presented in Figure 6-2. The conformity determination must include an emission analysis of VOC and NOx. The analysis must demonstrate that the emissions of each pollutant for the Transportation Plan Update will be less than the 1990 base year emissions.

Completing the Air Quality analysis on the Transportation Plan Update meant dealing with some long range projects that are still in the conceptual stage. In accordance with the transportation conformity rules by USEPA and NYSDOT, if adequate information was available to produce reasonable assumptions, then forecasts of the project impacts on vehicle miles travel and average vehicle speeds were produced. In some cases sufficient data is not yet available to properly model the emissions. In these cases, the projects will be modeled as a data becomes available and the results will be included when conformity is determined for updates to the Transportation Plan Update.

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Future projects for which there was not enough data available to model include those still in the early development stages by their sponsors, such as the Hudson Line Extension DEIS/MIS by Metro-North Railroad.

Results of Analysis

The purpose of modeling the regionally significant non-exempt projects is to be able to put the Transportation Plan Update to the two tests it must pass before it can be accepted in a moderate nonattainment area.

- Will building all the projects in the timeframe of the Transportation Plan Update result in less ozone pollution than not building any of them?
- Will future air be cleaner than it was in base year 1990?

The results show that in the year 2020, implementing the projects and actions called for in the plan will reduce emissions of VOC by approximately 92 kilograms per day, and NOx by about 16 kilograms per day compared with the no build option (Figure 6-3). In addition, for all the milestone years, emissions of VOC and NOx are estimated to be lower than they were in 1990.

The quantitative analysis demonstrates that the Transportation Plan Update would result in net emission reductions in all analysis years compared to the 1990 base and the no-build scenarios. Given that there are no new Transportation Control Measures (TCMs) applicable to Dutchess County, this completes the conformity review.

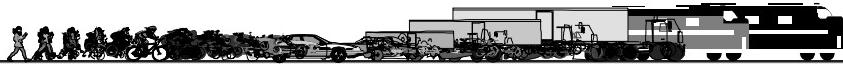


Figure 6-3 Results of Conformity Evaluation

Year	VOC (kg/day)		NOx (kg/day)	
	Build	No Build	Build	No Build
1990	17,018	N/A	20,059	N/A
1996	12,070	N/A	16,724	N/A
1999	10,537	10,581	15,425	15,524
2006	6,961	7,108	12,393	12,725
2015	6,435	6,595	12,210	12,523
2020	6,780	6,871	12,959	12,970

Appendix A - Summary of Public Comments

The draft Transportation Plan Update (Update) was reviewed by the Technical Committee at its January 29, 1998 meeting, and the Plan Summary was reviewed at the February 27, 1998 meeting. A Public Notice announcing the dates of the Public Information Meeting and the PDCTC Meeting was mailed to the Public Information mailing list, the press, and the PDCTC committee members on March 3, 1998.

Two Public Information Meetings were held on March 18, 1998 at the Dutchess County Planning & Development Department at 3:00 pm, and in the Wappinger Town Hall at 7:00 pm. In addition, the public was given an opportunity to comment at the PDCTC Meeting on March 25, 1998.

This summary includes all comments made at the Public Information meetings, at the PDCTC Meeting, in writing, and by telephone. The PDCTC response is outlined immediately following each comment.

Route 9 Pedestrian Crossing - Accelerate the provision of the a pedestrian crossing of Wappinger Lake on Route 9. The current schedule for the project that would correct this deficiency in 2002 is insufficient. [Scenic Hudson, DiMarco]

Response - At the request of the Town of Wappinger and the Village of Wappingers Falls, NYSDOT investigated the possibility of creating a temporary walkway on the Route 9 bridge over Wappinger Lake. A walkway, in the form of a four-foot shoulder, was determined to be potentially unsafe because of the narrowness of the shoulder for either one-way or two-way pedestrian/bicycle traffic, the volume and speed of traffic on Route 9, and the need to ensure ADA accessibility.

NYSDOT proposes instead that the design and construction of a separate pedestrian/bicycle crossing of Wappinger Lake be advanced on an accelerated schedule. The Village could progress the design as part of the Service Road project it will be designing. NYSDOT would pay for the design and construction of the new crossing.

Route 9W Safety Project - Maintain the bridge over the old Conrail line, and provide safe pedestrian passage across the ramps to the Mid-Hudson Bridge in the project. The Town of Lloyd is developing the old rail corridor as a rail trail to provide alternative transportation and the proposed culvert is insufficient. [Scenic Hudson]

Response - The project will provide safe pedestrian passage across the existing ramps. The proposed underpass for the potential rail-trail is consistent with similar structures for other trails.

Taconic State Parkway - NYSDOT intends to rehabilitate the Parkway between Route 44 and Route 23 in Columbia County. The project includes the construction of new shoulders, and the closing of the Hollow Road intersection. Several individuals and groups have expressed their opposition to the construction of the shoulders because of the potential impact on the historic and scenic character of the parkway. [Dutchess Land Conservancy, Scenic Hudson, Clinton Watch, Valentine]

There was also a recommendation that an acceleration lane be constructed at the Taconic State Parkway-Arthursburg Road intersection to permit easier access. [Jones]

Response - The scope of the project to rehabilitate the Taconic State Parkway has been reviewed by the NY State historic Preservation Officer and agreement reached on the preservation of the historic features of the Parkway. NYSDOT must balance the preservation of historic and scenic features of the Parkway with the safety of the traveling public.

NYSDOT has a project to improve the Taconic State Parkway-Arthursburg Road intersection (PIN 8126.60). This project would close the median of the Parkway at Arthursburg Road, and require northbound traffic to exit via a new ramp to Noxon Road (CR 21). The southbound Parkway access would remain at Arthursburg Road. A deceleration lane for exiting traffic, and an acceleration lane for entering traffic would be provided.

Mid-Hudson Bridge-Route 9 Interchange - The interchange between the Mid-Hudson Bridge and Route 9 southbound is unsafe and should be remedied. [Currie]

Response - The NYS Bridge Authority and NYSDOT are jointly considering safety improvements at this location. Discussion of the scope of the improvements has begun. No schedule or cost has been developed.

Americans With Disabilities Act - There is concern that the Dutchess County LOOP System has not yet fully complied with the provisions of the Americans with Disabilities Act (ADA) that was passed in 1990. [Taconic Resources for Independence]

Response - Dutchess County LOOP is replacing its fleet, and expects that the fleet will be fully accessible by 2000. By mid-1998 there will be only five (5) buses that are not ADA compliant. LOOP has established procedures for identifying people with special mobility needs and scheduling trips to ensure the proper equipment is available where and when needed.

Hudson River Access - Permit better access to the Hudson River across the Metro-North Hudson Line for shore fishermen. In addition, permit vehicle access along the tracks that will enable people to access prime fishing locations that are a long distance from existing access points. [Federation of Dutchess County Fish & Game Clubs, DiMarco]

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Response - Metro-North is currently reviewing the results of its public hearings on this subject, and intends to develop its Hudson River Access policy by late 1998.

Public Comments Received March, 1998

Clinton Watch, Laura Boxer
Dutchess Land Conservancy, Richard Kimball, Jr.
Federation of Dutchess County Fish and Game Clubs, William Emslie
Scenic Hudson, Jeffrey Anzевino
Taconic Resources for Independence, Laura Price

Virginia Currie
Hank DiMarco
Graham Jones
Carol Valentine

Appendix B - Glossary of Terms and Abbreviations

21st Century Mobility (Hudson Valley Transportation Plan) - Transportation plan prepared by NYSDOT-Region 8 for the seven county mid-Hudson region (Columbia, Dutchess, Orange, Putnam, Rockland, Ulster and Westchester).

AADT - Annual Average Daily Traffic. The estimate of typical daily traffic on a road segment for all days of the week over the period of one year.

AASHTO - American Association of State Highway and Transportation Officials.

ADA - Americans with Disabilities Act. Federal law that governs the provision of services and facilities necessary to accommodate people with disabilities. The law includes specific requirements regarding transportation services and facilities.

Bicycle - Every two or three wheeled device upon which a person or persons may ride, propelled by human power through a belt, chain, or gears, with such wheels in tandem or tricycle, except that it shall not include such a device having solid tires and intended for use only on a sidewalk or by pre-teenage children. (New York State Vehicle and Traffic Law)

Bicycle Facility - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, bikeway maps, and shared roadways not specifically designated for bicycle use.

Bicycle Route (Bike Route) - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number. Includes both facilities for exclusive use of bicycles and shared use with motor vehicles.

CAAA - Clean Air Act Amendments of 1990. Federal law which stresses the relationship of transportation and air quality and the attainment of **National Ambient Air Quality Standards**.

CHIPS - Consolidated Local Street and Highway Improvement Program. State funding program that provides counties and municipalities with state aid for operating, maintaining, and rehabilitating local highways and bridges.

CMAQ - Congestion Mitigation/Air Quality Program. Federal funding program for projects and programs designed to decrease traffic congestion and/or improve air quality.

Crosswalk - Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface. (New York State Vehicle and Traffic Law)

DCDPW - Dutchess County Department of Public Works. Dutchess County department charged with responsibility for county highway, bridge, and building facilities.

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EPA - Environmental Protection Agency. Federal agency responsible for implementing the Clean Air Act.

FHWA - Federal Highway Administration. **USDOT** agency responsible for approval of transportation projects that affect the federal aid highway system. FHWA is a non-voting member of the **PDCTC**.

FTA - Federal Transit Administration. **USDOT** agency responsible for approval of mass transit projects. FTA is a non-voting member of the **PDCTC**.

HBRR - Highway Bridge Replacement and Rehabilitation. Federal funding program for rehabilitation and replacement of deficient highway bridges.

Highway - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

HOV - High Occupancy Vehicle. A vehicle carrying two or more passengers, including caravans, vanpools, and buses.

HOV Lane - highway travel lane designated for use by **HOVs**.

HVTP - Hudson Valley Transportation Plan. See *21st Century Mobility*.

IM - Interstate Maintenance. Federal funding program for projects and programs on the Interstate Highway System.

Intermodal Transportation - A description of transportation using various forms of public and private transportation to reach a destination.

ISTEA - Intermodal Surface Transportation Efficiency Act of 1991 (pronounced ice-tea). Federal law that governs how federal transportation funds are spent. The requirements of ISTEА are administered jointly by **FHWA** and **FTA**. This has been superceded by **TEA-21**.

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LOS - Level Of Service. Traffic engineering term that describes the operating conditions that a driver will experience while traveling a particular street or highway.

LRP - Long Range Plan. The long-range plan for PDCTC is Transportation Plan Update, (1998).

MNR - Metro-North Railroad (Metro-North). An operating affiliate of the Metropolitan Transportation Authority (MTA) that provides rail service to Dutchess County (among others). MTA is a voting member of the **PDCTC**.

MPO - Metropolitan Planning Organization. Federally mandated organization for coordinating transportation planning in a designated metropolitan area. All urbanized areas over 50,000 population are required to have an MPO.

NAAQS - National Ambient Air Quality Standards. Federal standards that set allowable concentrations and exposure limits for various pollutants.

NHS - National Highway System. A nation-wide system of highways and roads designated by the US Congress that serve to link the states, major urban areas, and other important destinations. Also a federal funding program for projects and programs on designated NHS facilities.

Nonattainment Area - Geographic area designated by the EPA where the national ambient air quality standards (**NAAQS**) have been exceeded. The Poughkeepsie Ozone Non-attainment area includes Dutchess, Putnam and northern Orange Counties.

NOCTC - Newburgh-Orange County Transportation Council. The **MPO** for Orange County.

NPTS - Nationwide Personal Transportation Survey. Periodic survey of travel behavior of people in the United States.

NYMTC - New York Metropolitan Transportation Council. The **MPO** for the New York metropolitan area that includes New York City, Long Island, and the Hudson Valley counties of Putnam, Rockland and Westchester.

NYSDEC - New York State Department of Environmental Conservation. NYSDEC is the state air quality agency/with primary responsibility for developing and amending the New York State Implementation Plan (**SIP**) for Air Quality.

NYSDOT - New York State Department of Transportation. NYSDOT is a voting member and Secretary to the **PDCTC**.

Park and Ride Lots - Parking lots provided for the use of car or van pool commuters. A parking lot to park one's personal vehicle close to home and continue the rest of the trip in a car or van pool or on public transportation.

PDCTC - Poughkeepsie-Dutchess County Transportation Council. The **MPO** for the Poughkeepsie metropolitan area which covers Dutchess County and the town of Lloyd (Ulster County). The PDCTC is responsible for adopting the long-range transportation plan, the Transportation Improvement Program, and an annual work program.

Pedestrian - Any person afoot or in a wheelchair. (New York State Vehicle and Traffic Law)

Right-of-Way - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

SDF - State Dedicated Fund. Funds collected and allocated by New York to fund highway and transit improvements.

Shoulder - A paved portion of the roadway to the right of the edge stripe designated to serve bicyclists, pedestrians, and motorists, but not specifically marked for bike/pedestrian use.

Sidewalk - The portion of a highway designed for preferential or exclusive use by pedestrians. A separated, hard-surfaced paved path raised from the street by means of a curb or other barrier, designed primarily for pedestrian users.

SIP - State Implementation Plan. A plan mandated by the Clean Air Act that contains procedures to monitor, control, maintain, and enforce compliance with the **NAAQS**.

SOV - Single Occupant Vehicle. A vehicle carrying a single person.

STIP - State Transportation Improvement Program. A statewide compilation of **MPO** and rural area **TIPs** that is submitted to the federal transportation agencies for approval.

STP - Surface Transportation Program. The major federal funding program for projects and programs on federal-aid highways. STP funds can also be used for transit capital projects.

TDM - Transportation Demand Management. Activities and programs designed to improve travel by reducing demand. Examples include ridesharing, transit, bicycling, and tele-commuting.

TEA-21 - Transportation Equity Act for the Twenty-first century (pronounced tea-21). Successor to **ISTEA**. Federal law that governs how federal transportation funds are spent, passed in 1998. The requirements of TEA-21 are administered jointly by **FHWA** and **FTA**.

TIP - Transportation Improvement Program. A five-year program of highway, transit, and other transportation capital projects. All federally funded projects must appear on an approved TIP to be implemented.

TSM - Transportation Systems Management. Activities and programs designed to improve travel by improving overall operations. Examples include signalization and turning lanes.

Traffic Calming - Strategies that employ physical measures to slow motorists through changes to the horizontal and vertical alignment of the road and by giving greater design priority to pedestrians, bicyclists and community amenities.

Trail - A separated, soft surface (stone dust, natural or other surface) designed primarily for pedestrian use.

USDOT - United States Department of Transportation. The federal cabinet department that includes the Federal Highway Administration and the Federal Transit Administration.

V/C - volume to capacity ratio. Measure of congestion that compares current traffic to rated capacity of highway facility. A road segment or intersection with a V/C ratio greater than 0.9 is considered congested.

VMT - vehicle miles travelled. Measure of vehicle travel; one vehicle travelling one mile.